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THE WILDS OF MAORILAND



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TORONTO



THE HAZY SLOPES AND WHITE CRESTS OF THE SEWARD KAIKOURAN, RISING
MAJESTICALLY ABOVE THE BLUE PACIFIC

THE WILDS OF MAORILAND

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WITH ILLUSTRATIONS AND MAPS

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PREFACE

IN writing *The Wilds of Maoriland* I have received much valuable assistance from a large number of people. I feel especially appreciative of the help rendered me by Mr. Colin Fraser, who read over the manuscript, making many important suggestions, and by Mr. S. Percy Smith, formerly Surveyor-General of New Zealand, to whom I am indebted for much of the information about the Maoris. To the New Zealand Tourist Department my warmest thanks are due for placing its large collection of photographs at my disposal for purposes of publication, as also to the Royal Geographical Society for permission to reproduce some of the maps contained in a paper which appeared in the Society's Journal. The coloured reproductions are from sketches by Mr. C. H. Eastlake, who spent parts of 1909 and 1910 with me in New Zealand.

JAMES MACKINTOSH BELL.

OLD BURNSIDE, ALMONTE, CANADA,
January 22, 1914.

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INTRODUCTION

“IF New Zealand were ironed out it would make a fine large country.” So an American is said to have observed as from a prominent point on the Southern Alps he gazed upon the ranges of mountains and hills stretching to the horizon in every direction. The observation was an apt one, and in one’s fancy one can picture even vaster flocks of sheep and herds of cattle than we know to-day roaming over a flat country when, ages hence, the mountains have been worn down and the material of which they were formed has been deposited to make new lands in the oceans to eastward and westward.

Happily for New Zealand, that day of topographical dulness lies far away in the geological future, and, fortunately for her scenic charm, she is to-day a mountainous country presenting a variety of physical features unknown in any other land of similar area on the globe. Her Alpine snowfields and glaciers rival those of the

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Swiss Alps and the Caucasus. Her sounds excel in grandeur the fiords of Scandinavia, her mighty volcanoes recall Vesuvius in Italy and the extinct Mount Hood in Oregon. Her geysers and hot springs surpass in scientific interest those of the Yellowstone Park. Her climate shows every variation, from the almost unceasing frosts of the lofty snowfields to the constantly balmy air of the northern shores. Her native vegetation—truly amazing in its variety—is antarctic in character on the higher Alps, almost tropical in the North, and semi-tropical even on the lowlands of the South Island. All of this variety of topography, climate, and flora unite to produce in a country having an area of only 104,751 square miles a paradise for the skilled geographer, geologist, and botanist. Even for the explorer who seeks to solve the geographic mysteries of some little-known land, New Zealand offers rare opportunities. Its million people are confined mainly to the coast, to the relatively few extensive stretches of plain, and to the *piedmont* valleys which radiate therefrom. The New Zealanders are essentially a travelling people, but they visit mainly the settled portions of their country or the established tourist resorts in the hinterland. The wilder and more northern part of the Auckland Peninsula is known mainly to Maori and Croatian gum-diggers, the interior

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of Hauraki to the prospector, and the primeval forests of the Urewera country to its Maori denizens. Only a few intrepid travellers have as yet wandered far from the settlements into the Alpine valleys, or scaled the snow-clad peaks which look down upon the plains of Canterbury and the forests of Westland. The fiord region of the south-west of the South Island still remains almost a *terra incognita*.

It was my good fortune to be for six years Director of New Zealand's Geological Survey, and during these years of almost constant travel my work and the love of exploration led me into many but little visited corners of this wonderful country, though much is to me, even yet, unknown land.

It is with the hope of encouraging strangers to New Zealand's shores not only to visit its prosperous towns, its fertile dairy farms, and wide-spread sheep and cattle stations, but also to wander far from these haunts of man into regions where the Maori, though weakened, still to some extent pursues the ways of his fathers; to penetrate into great forests where the shrill cry of the kiwi is heard at dusk; or to range over Alpine passes where landscapes of matchless splendour unfold themselves with the rising sun; it is with this hope that I make bold to string together a number of disconnected accounts

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of journeys made at divers times into the New Zealand wilds. I conclude my traveller's tales with a description of the geography and climate of New Zealand—very dull reading, I fancy, for the average reader, but serving, perhaps, to illuminate to some extent for the geographer the areas discussed in the previous chapters.

As my mind dwells once more on my wanderings in the New Zealand "back country," the men who were my comrades in the joy and misery of the march come one by one before me. I think of Colin Fraser—my staunch friend—the same in town, in outlying mining camp, or in Maori *whare*; Edward Clarke, as learned in the history of the early European settlement of his country as in its geology and botany; Patrick Marshall, well known for his knowledge of New Zealand's geology and geography, and for his travels into the wildest part of wild New Zealand—the fiord region; Jack Clarke, the skilful Alpinist of Mount Cook, the most unselfish and thoughtful of helpers, as well as the most cheerful of companions on the most arduous of journeys; Jim Cadigan, the inimitable Irish-Colonial, whose bursts of unexpected humour saved us from many a *contretemps* such as arise, alas! even among the best of friends, under trying circumstances; Hugh Macpherson, the interesting Maori half-caste, whose know-

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ledge of the ways of the people of his dusky mother enabled him to recount their wondrous legends with such warm sympathy. These and many others, from whom came help and kindness in great measure, are recalled affectionately to my memory as I write, and there comes to me a great, strong yearning to be astride once more my trusted pony and scamper close to the great white breakers along the hard sand-beaches near the North Cape ; to smell the smoke of the rata-wood fire beneath the shade of a giant rimu in the Urewera ; to see the sun set in brilliant splendour over the tussock-covered highlands on the plateau of Mount Arthur ; to hear the crunch of the hard snow beneath my feet on the snowfields above Franz Josef Glacier ; to look upon the giant peak of Aorangi emerging roseate from the mists of morning, and to see the hazy slopes and white crests of the seaward Kaikouras, rising majestically above the blue Pacific. Again comes the longing for the joys of the camp by some mountain streamlet after a day of trudging ; for the enraptured interest in the stories around the camp fire ; for the deep sleep on a soft bed of sweet-smelling manuka boughs, and for the awakening in the early morning to the joyous, never-to-be-forgotten note of the tui !

CHAPTER I

FROM WHANGAROA TO THE NORTH CAPE

NORTHWARD from the city of Auckland lies that portion of New Zealand known as the Auckland Peninsula. To its shores came some of the first white settlers in Maoriland during the early decades of the last century. On the Bay of Islands, about 120 miles north of Auckland, is situated Russell, once New Zealand's capital, while some fifteen miles inland lies Waimate—the old home of the missionaries of whom Darwin writes in the *Cruise of the "Beagle."*

The vicinity of Russell and Waimate is full of the historic interest attached to these early British inhabitants—to the quarrels which arose, and the battles fought between these settlers and the Maoris, and to the bloody wars waged in the centuries past among the various tribes of natives themselves.

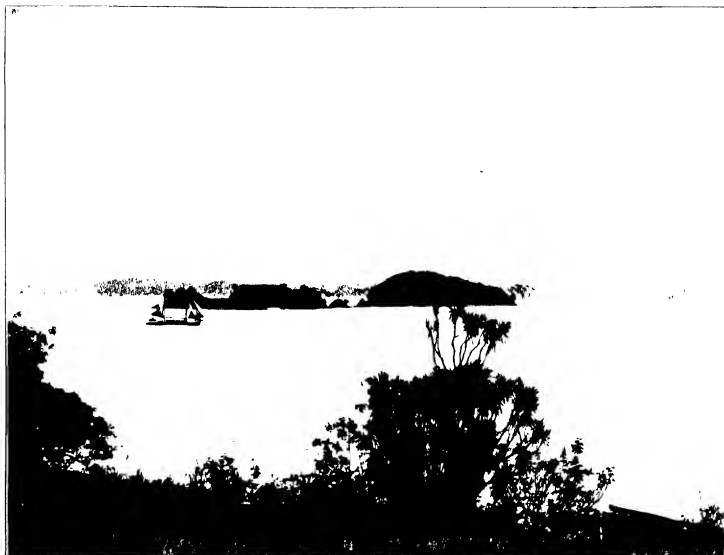
Beyond the Bay of Islands the Auckland

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Peninsula is still in great part a wilderness, and very sparsely inhabited. A few prosperous villages lie at the mouths of the larger streams ; in places straggling hamlets are found along their courses in the interior, and here and there are scattered the camps of Maoris and Croatians, who dig for kauri-gum, the remarkable fossil product of the kauri-pine.

At the northern extremity of the Auckland Peninsula, rolling highlands present a bold front for nearly twenty-five miles to the warm winds of the Southern Pacific. These highlands, extending about twenty miles farther south, gradually merge into a low sandy isthmus—some thirty miles in length and less than ten miles in width, which connects them with the main part of the Auckland Peninsula. The hilly country to the north together with the isthmus forms the subsidiary Aupouri Peninsula. The country to the south of the isthmus is mainly highland, consisting of extensive uplands, plain-like, or gently rolling in character, above which rises a variety of table-topped mountains, well-preserved or much - dissected cones, and grotesquely shaped pinnacles.

The highlands, both to the north and south of the isthmus, are composed partly of sedimentary rocks and partly of volcanics. To the latter are due the outstanding features of a land-



Photo, N.Z. Tourist Dept.

BAY OF ISLANDS.



Photo, N.Z. Tourist Dept.

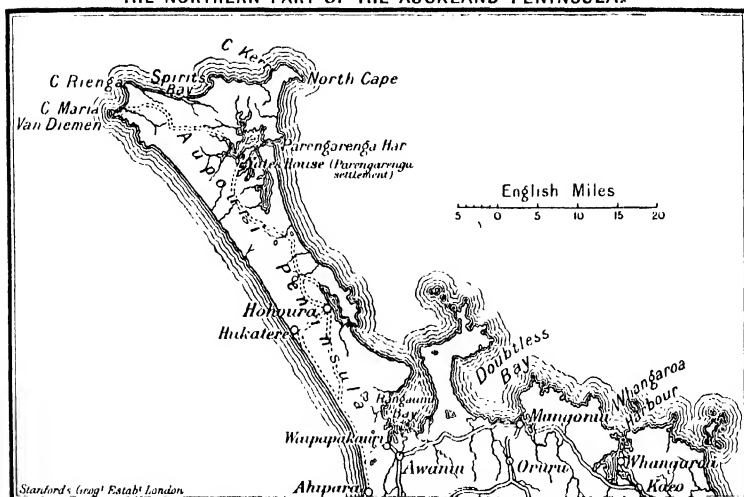
LOOKING TOWARDS THE HEADS, WHANGAROA HARBOUR.

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scape which may generally be described as somewhat tame and monotonous.¹

North of the Bay of Islands, there are comparatively few large streams in the Auckland Peninsula, the principal being the Awanui and the Kaero. Both of these, as well as many other

THE NORTHERN PART OF THE AUCKLAND PENINSULA.



smaller ones, are bordered in their lower reaches by relatively small flood plains, which towards the sea gradually merge into mangrove swamps. On these lowlands nestles here and there a comfortable homestead, for wherever practicable they have been taken up for dairying purposes.

¹ *A Geological Reconnaissance of Northernmost New Zealand*, by J. Mackintosh Bell and F. de C. Clarke.

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The surface of the upland plains is formed of a thick stratum of clay covered in places by extensive swamps, and elsewhere by a poor thin soil. Formerly it supported great forests of kauri, as the fossil gum found almost everywhere within three or four feet of the surface, testifies; now it is usually clothed only by a scrubby growth of manuka and bracken.

The kauri, until recently, flourished in the valleys and on the slopes of the higher hills rising above the upland plains, but lumbering within the last two decades has made great onslaughts. Now, only a few of these valuable trees can be seen, though in places a mixed forest, almost tropical in luxuriance and splendour, still grows in its primeval grandeur.

The coast-line of the northern part of the Auckland Peninsula is one of the most beautiful in the world. Long reaches of sand-beach alternate with longer stretches of rugged headland: along the latter rock-bound section of the coast are small gravel or sand bordered bays, and here and there deep inlets extend far into the interior. Perhaps the most beautiful of these inlets is Whangaroa Harbour—about thirty-five miles north of the Bay of Islands. Here for months Edward Clarke and I made our headquarters while geologising in the surrounding country. It is a beautiful land-locked harbour,

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bordered by green grassy slopes and by steep cliffs backed in places by rugged volcanic crags of bizarre outline. Its surface is dotted by numerous islands, its shore-line indented by many winding bays, its narrow entrance flanked by great precipices, in which the waves have excavated caverns and grottos of fantastic form.

Long before the white man came, Whangaroa Harbour was a favourite meeting-ground of the Maoris, and in connection with their old strongholds, the outlines of which can still be traced on many a hillside, lurk stories of almost forgotten battles waged in the warlike past. Later, whalers in great numbers resorted to the harbour, which they found a convenient base for scouring the Southern Seas. Even now, though they have long since departed, one sees many evidences of their habitation, and hears from the old-timer yarns—alas! not always too savoury, concerning these adventurous spirits.

It was in Whangaroa Harbour that early in the last century occurred one of the most memorable and deplorable events associated with the early European settlement of New Zealand—the massacre of the *Boyd*—a tragedy connected with the first landing here of the white man.

The *Boyd* was a ship of five hundred tons

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burden commanded by Captain John Thompson. Chartered by the British Government as a transport for convicts to Port Jackson, Botany Bay, Australia, she had disembarked in that colony her human freight and had sailed for New Zealand with the intention, so it is said, of shipping a cargo of kauri timber for the north-west of America. At Port Jackson a number of passengers whose ultimate destiny was England joined the ship, and two Maoris were added to the crew, owing to their knowledge of the northern part of New Zealand. One of the latter, a fine big native named George,¹ had had already a wide experience on English ships. On the voyage to New Zealand he was taken ill, and as a result was unable to work. The Captain, who, as may be judged from his having commanded a convict steamer, quite apart from his behaviour on this occasion, was far from being a sympathetic seaman, declared that the illness was feigned, and commanded the Maori to keep to his duties. When the latter still persisted in refusing, the Captain threatened, insulted, and abused him. In vain George remonstrated, declaring that he was a chief in his own country and unaccustomed to such humiliating treatment. His entreaties only served to exasperate Thompson further, who

¹ His Maori name was Te Puhī.



ONE OF THE BAYS OF WHANGAROA HARBOUR.



THE HEADS, WHANGAROA HARBOUR.

Photo. N. S. L. East Dept

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had him tied to the gangway and flogged unmercifully.

George did not forget this degrading punishment nor the scurrilous insults of the crew, and even of the passengers, to which he was subjected for the remainder of the voyage. Arriving in New Zealand waters, the *Boyd*, no doubt at George's instigation, anchored in Whangaroa Harbour, and soon the Maori was sent ashore, having first been stripped of his clothes and treated to further indignities.

George was now with his own people. A meeting was immediately held, and a horrible revenge planned to satiate the enraged feelings of his tribesmen.

Into the trap laid for him the Captain thrust himself with a temerity which seems remarkable for a man who must have understood to some extent at least the salient passions of the natives. Leaving the ship quite unprotected, he and most of his crew left for the shore with the intention of examining certain large kauri trees growing in the valley of a stream entering the harbour. They had scarcely reached the shore when a horde of natives surrounded them. The Captain, who seems to have thoroughly deserved his fate, was the first to be slaughtered, but his less blameworthy crew soon fared likewise.

The murderers, having robed themselves in

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the clothes of their victims, hastened to the ship to complete the carnage. A horrible massacre ensued. Some of the sailors thinking to escape took to the rigging, but they were soon dislodged and killed. In all some seventy persons are said to have perished, only four out of the entire ship's company remaining alive when the butchering ceased—a woman, two children, and a cabin-boy. The three former managed to hide until the thirst for blood was quenched, while the latter, having befriended George, when taunted by the rest of the crew on the voyage over, was now gratefully rewarded by the Maori chief's protection.

When the massacre was over the Maoris fell upon their unfortunate victims, tore the flesh from the mangled bodies, and feasted upon it till their inhuman appetites were satisfied.

Most of the natives, having loaded themselves with plunder, then left for the shore, while a few remained behind to test the various kinds of food which they found in the ship's larder. One warrior is said to have greedily seized a cake of yellow soap, and thinking it to be some special delicacy of the *pakeha*,¹ bit off a large mouthful before he realised his mistake. While the ship was thus being ransacked, she was accidentally set on fire. Accounts differ as to how

¹ White man.

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this actually occurred. According to one version of the story, a Maori while searching the hold dropped some burning material among the gunpowder, which caused a terrific explosion. At the same time the watchers on the shore saw the upper part of the vessel blown into the air, and among the débris espied the dismembered limbs and bodies of the murdered and their murderers. Such was the dramatic ending to a gruesome tragedy !

Near the inner part of Whangaroa Harbour, in times of the lowest tides, one may still espy some ten feet or so below the surface the hull of the *Boyd*, where for over a hundred years it has remained a grim monument to Thompson and to the appalling massacre caused by his tyrannous treatment of a Maori.¹

It was a chilly day in early September when Edward Clarke and I left our camp on Whangaroa Harbour for the long ride to the North Cape. The strong wind alternately pelted sheets of rain in our faces or again dispersed the clouds and afforded brief glimpses of weak sunshine. The road from Whangaroa to Mangonui is poorly formed and leads through dreary, desolate country, singularly devoid of interest. My mind

¹ I am indebted to the late Mr. T. C. Williams of Wellington, one of the first white children born in New Zealand, for some of the details of this account.

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in recalling it pictures the sombre, volcanic crags, with half-burnt timber clinging to their bases ; the dull grey-green uplands, here and there dug over in search of kauri-gum ; the long road knee-deep in mud, and unrelieved by a single habitation. Mangonui itself is charmingly situated almost on the open sea. The wind had gone down when we drew near the old settlement nestling snugly at the base of low green slopes, and cut off from an eastward approach by a mangrove-filled stream, over which we rode on a shaky wooden bridge. The little village, in the soft lights of the evening sun, looked homelike and peaceful and seemed to welcome us from our lonely march. We passed the night comfortably at a remarkably clean inn, where—*mirabile dictu*—we were politely treated alike by our host, by the waitress, and by the groom in the stable-yard.

From Mangonui two tracks lead toward Awanui : one follows close to the coast-line, the other pursues easier grades inland. We chose the former route as being more direct, and as being possibly more attractive from a scenic standpoint. Most of it did not prove so, and for much of the forty miles it would be difficult to imagine a drearier ride. For the first ten miles or so we rode near the ocean, past an occasional cottage, past the cable station, past



'PAST STRAGGLING CABBAGE TREES GROWING CLOSE TO THE SEA MARGIN'

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straggling cabbage trees growing close to the sea margin, and up and down over headlands giving pleasing glimpses of purple-grey rocks, blue sea, and yellow sand-beach. Then we struck inland, ascending by a narrow track on to the clay-covered uplands. Over these our trail—narrow, meandering, and in places scarcely traceable—passed up and down for nearly twenty miles. I shall not dwell upon the monotony of that ride through a dull grey landscape, with an icy rain blowing in our faces, and our horses floundering and slipping knee-deep in mud. I remember but one incident, being joined by a wind-battered Austrian with a wistful handsome face, who told us how grievously scarce the kauri-gum had become, and to what extent his revenue had dwindled accordingly, though now, longing to return to his native Croatia, he worked longer hours and harder than formerly. His gloomy appearance accorded with the harsh weather and the dreary surroundings, but the sad look of longing in his eyes haunted me, and I was not sorry when he left us and rode swiftly away through the manuka to his lonely hut in a bush-clad gully.

About six miles from Awanui our track led from the uplands to lower ground, and here merged into a wider and definitely formed road. I have seen the knee-deep sloughs of mud which

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mark the streets of a Canadian prairie town after the melting of the winter's snow ; I have been dragged by sturdy Russian ponies through the deep accumulation of liquid filth which so often covers the highways of a Siberian town even far into the summer, but never in any of my travels have I seen such a road as formed that six miles' stretch. There was not a dry spot anywhere ; we were drenched to the skin, dead tired, and ever so hungry. We must reach a habitation of some sort before nightfall—now not far distant. I still marvel that our already tired ponies managed to drag themselves and us through such a quagmire,—up to their knees at every step, and frequently up to their withers, occasionally completely bogged, now panting, now shaking, and now being urged forward by active persuasion and even by imprecation. Fortunately for us, the brave little beasts stood the pressure well, and just as night was closing in, the lights of the “Travellers' Rest” at Waipapakauri, some two miles beyond Awanui, came into view. How gladly we approached this haven, and—how gladly we left it next morning !

The inn-keeper, an evil-looking, one-eyed old man, gave us far from a ceremonious welcome, and after some *pourparlers*, led us up a narrow, almost vertical, flight of stairs to a

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single damp apartment—which alone was available for the three of us. It was so small as to be almost completely filled by a large and partially collapsed double bed, a diminutive single pallet, and a washstand, devoid of water and towels, but plentifully supplied with large cakes of brilliantly coloured and highly scented soap. The evening meal was no more cheery than our sleeping accommodation. Alterations in the dining-hall were proceeding, and part of one of the thin walls was removed, allowing full vent for the icy wind to play around us and waft doubtful odours from the whisky and beer bottles filled with decayed arum lilies, which gave a funereal aspect to the dismal scene. In vain we asked for the open fire—found in nearly every New Zealand habitation, no matter how humble—by which to warm ourselves and dry our soggy garments. There was nothing to do but freeze in our thin change of clothing intended for the milder weather near the North Cape, and send our wet clothes to the kitchen, whence our wretched meal had so recently emerged, and where they took a back seat far from the kitchen range among the malodorous garments of Maori and Croatian gum-diggers and the varied other human nondescripts always present at inns in the New Zealand back-blocks.

We were glad to flee for refuge from the siren

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who presided over the kitchen to the man-living part of the establishment—a good-sized billiard-room, in which had already congregated the other “guests.” Here brown-skinned Maoris played with dusky Croatians, while an Englishman, quite possibly of gentle origin, served as marker. “That broken-down English toff is no good for anything but counting”—so the landlord told us. Though both Maori and Croatian were spoken, the conversation was conducted mainly in broken English. The behaviour of the audience changed from lively to boisterous, and from rowdy to sad as the evening wore on, and as the drinks, served from an adjoining bar, were passed round with greater and greater frequency. Altogether a roaring business was done, to the great gratification of our host, whose good humour therefore reached a high pitch just at the time when we felt discretion warranted our departure from the mass of humanity which lay on the grimy mud floor, or fought furiously on the most trivial excuse over the benches and table.

There was to be little repose for our tired bodies that night at the “Travellers’ Rest.” The row made by drunken humanity below (and which was not to cease until the approach of dawn, when all had been reduced to a maudlin insensibility) was reinforced from outside, as

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Maori and Croatian alike had each brought to the inn his faithful hound, and these, true to their masters' spirit, battled furiously without, while their lords brawled within. Never have I looked upon a more dejected conglomeration of dogs—bloody, tousled, and maimed—which the early light of a matchless morning revealed, stretched out on dry oases of straw amid the mud which everywhere surrounded the inn.

The sun was already high when, after a much-belated breakfast, we were at last able to secure our horses and ride forth into the unknown. Less than a mile to the westward, and we had left the low-lying, muddy road behind, and were rising over rolling hills. Here we saw a group of Croatians, working in a singularly systematic way at what was evidently a highly remunerative gum-patch. They had, first of all, dug a trench six or seven feet deep, and with that as a starting-point, were carrying forward a face one hundred feet or more in length, digging over every bit of ground, and obtaining practically all the gum present. In dry ground, such as this was, the gum ordinarily occurs within a few feet of the surface. They were apparently reaping a big harvest, and were dividing the material obtained into several qualities,—the first quality, generally in large

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chunks, and the various other grades, depending apparently on size.

Sometimes the large pieces of gum are actually cleaned in the field, but this operation is now generally left to be done in the gum stores, where the refuse thus obtained is often mixed with the small stuff of poor grade gathered during the digging operations. Not until I had visited the gum-fields of the Auckland Peninsula did I realise how great was the revenue derived from this source. Up to the end of 1912, the value of the gum from all parts of northern New Zealand amounted to no less than £16,210,457, and even for the year 1912, when the output was less than in some preceding years, to £401,305.¹

Leaving the industrious Croatians behind, a ride of a mile or two through sand-hills, scant in vegetation, brought us to the sea-beach, which, open and expansive, stretched far to the southward to the sand-covered cliffs of Ahipara, and away to the northward, till lost in the dim haze which marked the horizon of a sky of deepest blue. For twenty miles we were to ride along that open shore-line, and then at a tiny hut, called Hukatere, nestling beneath a group of sand-dunes, more lofty than the rest, were to await a

¹ In 1911 it amounted to £395,707, so that there was a slight gain in 1912 over the year before.

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guide, already bespoken by telegram, to guide us across the fickle sands of the peninsula to Hohoura.

Oh ! the glories of that twenty-mile ride along that hard, shell-strewn sand-beach ; the multiform, yellow sand-dunes on our right, the blue, sparkling ocean on our left. The sea was calm, but the unceasing swell on the broad sweep of the Tasman flung great white breakers high on to the beach with the advancing tide, and brought with each forward movement strange creatures to our feet. Sea-birds, innumerable and of great variety, floated serenely around us—their shrill shrieks at times being lost in the roar of the breakers. How mysterious seemed the albatross as it soared low over the sea ; how beautiful the white and grey gulls, as they shot from the beach as we approached, to light on a wave, or on the sand a short distance beyond.

On this ride I first made the acquaintance of a remarkable mussel of large size, much relished by the Maoris. Buried in the sand to a depth of four or five inches, his siphuncle connects with the surface. Up this he foolishly shoots a jet of water when the sand is disturbed in his neighbourhood. Dug out and laid on the beach, he quickly overcomes his fright and bores his way down with his powerful foot, till he has

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reached the desired depth. This strange animal, as well as stranded jelly-fish, stingarees, and many other creatures—of which, I fear, I know little—we seized a moment to inspect as from time to time we rested our impatient ponies, which, intoxicated by so remarkable a highway and the exhilarating air of the sea, were far too keen to dash forward and end so pleasant a journey.

Reaching Hukatere, we found our guide had not yet arrived, so, after a meal at the lonely stopping-place, we basked for an hour or so in the dry herbage which grew amid the more sheltered sand-dunes, till he appeared. He was a lank and unpleasing young half-caste, but from the women at the rest-house we learned that he knew, even with his eyes closed, every bit of the treacherous road to Hohoura. We had heard terrifying stories all along our route regarding this road—stories of lone travellers lost in sand-storms, of caravans overwhelmed and obliged to forsake their impedimenta, and of horses and cattle strayed and never recovered. Fortunately for us calm weather prevailed, and, closely pursuing our nimble guide, we easily traversed the peninsula, now threading our way through a maze of sand-dunes of an extraordinary variety of form, again passing shallow ponds whose treacherous, salt-becrusted margin at times

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seemed anxious to engulf us in quicksand. It was a strangely desert-like topography for so wet a climate. The few plants which grew in the more sheltered spots were mainly serophilous. The sentinel-like bunches of coarse grass, which in places surmounted and held together hummocks of sand, reminded me more of the arid plains of Australia than of the moist stretches of northern New Zealand. Approaching Hohoura, the vegetation increased, a few wind-twisted trees being dimly seen against the dull darkening sky as we reached the settlement.

The outstanding feature of Hohoura, like nearly all the gum settlements of northern New Zealand, is its public-house—a gaudily pretentious habitation, near which are scattered the wretched hovels of the gum-diggers. In front lies the long narrow inlet of Hohoura stretching north and south, sheltered from the open sea by a range of low hills, only partially covered by the far-spreading sand. When the tide is out the inlet consists of a sandy mud-flat. Over this grow in places scattered mangroves, while here and there a few old kauri stumps rising from the mud tell of an ancient forest which flourished on dry soil, and of a recent depression of the land. The inn-keeper welcomed us more cordially than our host of the night before, and escorted us to

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comfortable quarters, where soon an excellent meal was served by a spotless waitress. While we dined we marvelled at the superiority of Hohoura over Waipapakauri, but there was a seamy side here, too, as Clarke learned when he went downstairs in the late evening to prepare for the next day's journey. Before any business could be accomplished he reluctantly had to assist in the task of carrying the completely overcome drunks—both white and brown—to accommodation especially prepared for such derelicts !

Northward from Hohoura as far as the inlet of Parengarenga, the country, though gently undulating, is generally low. To the west of the inlet the land slowly rises in a gentle slope, which merges beyond into a much-dissected highland reaching in places an altitude of about 1000 feet. To the northward this highland descends rapidly to the ocean, where a series of gravel or sand bordered beaches, diversified by bold and rugged promontories, form a much-varied shore-line. The streams entering the bays meander sluggishly near their mouths—a feature which, with the numerous islets and skerries off the coast, testifies to a relatively recent downward movement of this part of the country. The largest streams enter the spacious inlet of Parengarenga, whose irregular outlines indicate

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graphically how this depression has allowed the sea to advance. The entrance to the inlet is, relative to its size, very narrow, and with the ebb and flow of the tide the water dashes through with the fury of a mill-race. At full tide the ramifying arms of the inlet are water-covered and form a pleasing contrast to the bordering hills; at low tide their hard surface, almost entirely bare, allows easy communication with the surrounding country from the small settlement of Parengarenga, situated on the central bay of the inlet of the same name.

The actual length in an air-line from Hohoura to Parengarenga is less than twenty-five miles, but the irregular trail between the two settlements covers a much greater distance. In the first half of this stretch the track leads over low-lying, gently undulating country, pursuing its course generally close to the eastern seaboard and skirting the sand-dunes, which extend across the interior to the westward. Then for some ten miles or so it leads over higher country inland, afterwards descending into one of the southern arms of the harbour, whence it traverses a low hilly peninsula to the central arm near the settlement.

Owing to our making a brief excursion across Hohoura Harbour we were late in leaving for Parengarenga, but our ponies, which, like

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ourselves, had fared better here than at Waipakauri, had taken us at least fifteen miles on our journey before we made our mid-day halt. The country which we passed through was singularly monotonous, though the radiant weather and the delicious air, scented by the flowers of the manuka, which, white and pink, blossomed profusely all along our route, amply made up for these scenic defects.

Here and there we came upon groups of Maoris, who greeted us cheerfully and lent a human interest to the landscape. The largest number of these natives were busily engaged in collecting kauri-gum from a swampy flat which, like many others in these parts, filled a shallow depression among the hills. We stopped for a few moments near their *kainga*,¹ a collection of sod and canvas huts, planted on the adjoining hills. Like all the natives of the South Sea Islands, the Maoris are strenuous workers at intervals, and equally determined idlers at other times. Their activities depend greatly upon the state of the *kainga* exchequer and their credit at the nearest store. Quite often all the members of the settlement work hard for a week or so, and then do nothing until the united savings are completely exhausted. Should a more energetic member

¹ Village.

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of the community, having wandered away from his home for a time and prospered, return with a full wallet, all live upon him until such time as he is quite rid of his temporary encumbrance. Unfortunately for our appetites, we came upon these Maoris in a time of excessive leanness, and all alike—men, women, and children, young and old, grizzly warriors, tattooed *wahines*¹ and black-eyed babies—seemed busily engaged in gum-hunting. Some, bared to their waists, stood submerged to their middles in the wetter holes in the swamp, feeling for lumps of gum, which they brought up from time to time with their feet, or dived for with their hands, if their nether limbs were unsuccessful in bringing the treasure to the surface. Others walked over the more solid parts of the swampy ground, prodding with a long iron spear. When a piece of gum was located, it was brought to the top by a long iron hook, or, if the piece were big, it was sometimes necessary—owing to intervening roots—to dig for it. This operation accomplished another object besides unearthing the gum: it gave a new point of attack in the hole, which filled quickly with water, for those who felt for the smaller particles with their feet. For the most part, those engaged in the active prospecting were the young or middle-aged of

¹ Women.

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both sexes; the old people and the children were perched along the edge of the swamp, scraping the larger pieces of gum and assorting the various grades into coarse sacks. All seemed to be enjoying their several occupations immensely. As we drew near, their laughing and singing ceased, and they gathered round us to inspect our horses, test the saddles, beg for tobacco, and otherwise take interest in our belongings. They were a picturesque lot, the gay colouring of their scanty garments contrasting vividly with their brown skins and the gloomy prospect round about. I was particularly anxious to photograph them, but the production of the camera caused the more interesting subjects, especially the more elementarily attired older ones, to take refuge in the swamp.

Early in the afternoon we reached the southern arm of the inlet of Parengarenga, and here a kindly *pakcha* Maori¹ offered to guide us by the devious paths which marked our route round the swampy shores of the inlet, and put us on the track leading across the higher country to the northward. When, at parting, our guide gave us full directions for our onward route, each one of us felt there was not a possible chance of missing our way across the dreary stretches of that dull, level, sand-covered upland.

¹ A white man who has taken to living with the Maoris.

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Alas ! how greatly were we mistaken—over and over again we got off the main track, which proved anything but a direct route to the north. Once a much-used trail took us to a deserted gum-diggers' shack, nestling beneath a sheltered hillside. Again, what seemed like a veritable highway conducted us to an extensive old gum-diggings, where our horses floundered and fell among the holes. Once more an apparently well-formed pathway lost us among the shifting sand-dunes, far to the west of our course. After these various mishaps, and after several times retreating on our steps, chance brought us, as the setting sun was gilding in gorgeous splendour the sandy uplands, to a narrow trail, scarcely perceptible among the manuka, and thence we soon regained the main track.

After an hour's hard riding over upland and through valley, we reached the central arm of the inlet, around the ill-defined shores of which we found our way with difficulty in the dark to Parengarenga. A group of scattered buildings, mainly on the foreshore, but some clinging to the adjoining hills, makes up the settlement, which has, I fancy, changed little in appearance since half a century ago, when it was a centre of the whaling industry. Now Parengarenga forms the headquarters of an interesting family—called Yates—who under a favourable lease control a

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considerable tract of country, covering practically the whole of the northern part of the Aupouri Peninsula. Their revenue is derived chiefly from kauri-gum, obtained mainly from their own territory which is still, though to a diminishing degree, highly productive. Here and there scattered herds of sheep and cattle are grazed, but the soil is, for the most part, so infertile that their numbers are inconsiderable for such a large acreage.

Rough tracks lead in various directions northward from Parengarenga, giving a good opportunity to explore on horseback the rough, hilly country lying in this direction. It is a singularly interesting part of New Zealand to the traveller, presenting a remarkable array of geographical, geological, and botanical problems. Unfortunately for us our stay was short, and there was time only for two trips of exploration. On the first of these, lasting three days, we travelled north-westward from the settlement to Cape Maria Van Diemen, and thence, up and down, around the wild coast which fronts the northern ocean as far as Spirits Bay, before turning southward to Parengarenga. On the second and shorter trip we journeyed to the North Cape and Cape Kerr, over rolling, though for the most part low, country.

The route from Parengarenga to Cape Maria

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Van Diemen, after leaving the mud-flats bordering the inlet, rises for four or five miles over manuka-covered hills, and thence plunges into a maze of sand-dunes which surmount the country even up to heights of 300 and 400 feet. Nearing Cape Maria Van Diemen, hills covered with vegetation in places emerge above the sands, while eastward several fertile valleys, filled in places with a luxuriant growth of trees, form a pleasing change from the monotony of the sands and give a pleasant contrast to the rugged headlands of the coast-line. Wide stretches of sand, showing in places old Maori middens with heaps of shells, bones, burnt pebbles, and fragments of obsidian, lead from the high land down to the shell-strewn sand-beach, which, lying between rocky cliffs, fronts the rugged islet forming Cape Maria Van Diemen. A few miles to the north-eastward is the bolder promontory of the Reinga, famed in Maori legend as the spot where their departed collect before leaving for Haiwaiki—the ancestral home.

On our second night out from Parengarenga we camped close to the Reinga in a deserted hut, near the point where a tiny stream finds its way across a narrow stretch of sand between pinnacles of rock to the sea. The luxuriant grass, the clumps of stately cabbage trees, the flowers blooming here and there made the narrow

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valley seem an oasis after the sand-dune deserts through which we had been passing during the day. The evening was calm and wonderfully clear, and the air so balmy that it was delightful to rest for a while after our long ride, and drink in quietly the beauty of the scene. Behind rose high hills, their rolling summits covered by yellowish-green flax and white-flowering manuka. A dark green forest cloaked the upper reaches of the valley, while nearer at hand meandered a blue ribbon of water bordered by vivid green grass. Below stretched a broad sand-beach strewn with shells of countless hues, comminuted by the wear of ages. Beyond lay the calm waters of the bay, softly pink in the fading light of the setting sun, which purpled the gloomy precipices rising high above, and outlined the circlet of tiny islets standing like sentinels guarding the entrance to the little bay. In the far-away distance across the darkening ocean appeared the dim blue outlines of the islands of the Three Kings—horrible in their memories of shipwrecks. A flight of sea birds rose and soared seaward, their strident chorus lost amid the distant roar of the breakers along the open coast. From the forest burst forth the joyous notes of tuis—a welcoming serenade. In such an idyllic spot we should have passed a peaceful night, but strange uncanny noises filled the air

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without, and made us fearful that the Maori spirits used the hut as a resting spot before leaving the Reinga ! The morning light revealed the fact that our nocturnal visitors were penguins, which found beneath the old floor a convenient nesting-place.

It is from Spirits Bay—some eight miles beyond the Reinga—the annual flight of the godwits is supposed to take place. In the marshes behind the long sand-beach which borders the bay, they find good feeding-ground, and there they collect in great numbers in the autumn. According to some reports the assembled birds, as if at a given signal, suddenly rise in a body and soar away northward. On the shores of Spirits Bay great battles were waged by the Maoris of old.¹ In places heaps of human bones lie near the sea-beach ; skulls grin at one from beneath a flax bush, and a whitened tibia or humerus, smoothed by the sand blast, forms a ghastly sign-post among the sand-dunes.

¹ A great fight took place in Spirits Bay in the first or second decade of the last century, between the Nga-Puhi on one side and the Te Rarawa and Te Aupouri on the other, in which the latter two tribes were badly defeated. Some of the fugitives fled to the islands of the Three Kings and there lived for many years. A pathetic incident is told of these exiles. When the wind blew from the mainland to the islands, carrying the light black ashes from fern fires, these poor people used to gather the fluffy fragments, crying over them meanwhile as messengers from their old home. (See *Maori Wars of the Nineteenth Century*, by S. Percy Smith.)

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To-day the Maoris of the peninsula of Aupouri, who a century ago fought so valiantly, make war no more, the sand blows over the sites of their *kaingas*, and buries deeply the fertile ground where their *kumaras*¹ flourished. Their glories are gone, their race is dwindled in numbers and degenerate.

¹ *Kumaras* are sweet potatoes.

CHAPTER II

RAMBLES IN THE HAURAKI GOLDFIELDS

As one sails away from the city of Auckland—the “last loneliest and loveliest” of Kipling, one sees to the west the high country of the Auckland Peninsula, and in the dim distance to the east the bush-covered mountains of Hauraki.

These mountains of Hauraki, which only for a few miles in any one locality form a defined ridge, collectively cover by far the greater part of the Hauraki mining division, and are a subsidiary range of that long chain, which, enclosing the Southern Alps and other lofty mountains in the South Island, are continued northward under various names, from the southernmost part of the North Island to the East Cape.

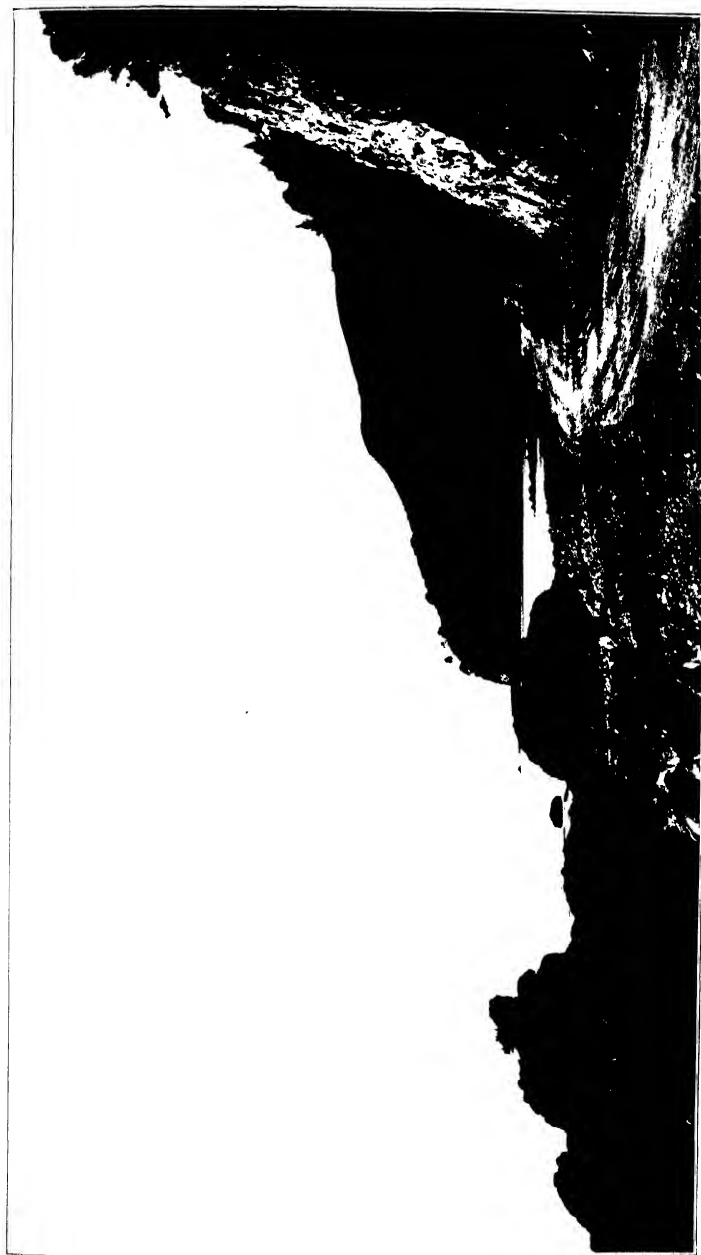
The Hauraki Peninsula, which has a length, from the gold-mining town of Thames at its south-western extremity to the old whaling station at Port Jackson at its farthest northern end, of about fifty miles, and a maximum width of about twenty miles, is only a portion of the

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mining division of the same name. Waiorongomai, the site of a number of gold prospects, Karangahake, the location of the prosperous Talisman, and the great Waihi mine itself lie respectively about twenty-five miles, nineteen miles, and twenty miles to the south and south-east of Thames on the mainland portion of the division.

Towards the north of the peninsula, beyond the township of Coromandel, the mountains composed mainly of sedimentary rocks form a lofty ridge, with its highest point the wind-swept peak of Moehau, 2953 feet in height, and from time immemorial sacred to the Maoris. The rounded and subdued lines of Moehau stand in marked contrast to the maze of volcanic crests extending southward from Coromandel beyond Karangahake, and reaching their greatest altitude in Te Aroha mountain, near the township of the same name and not far from Waiorongomai.

As one reaches Thames by steamer, and looks upon the rugged cones, the abrupt palisades, the broken crags, that here and there rise castellate above the sea of dark green hills to the eastward, one forms but a vague idea of the widespread irregularity of that wild forested country. Repeated volcanic activity through long past geological ages and subsequent denudation by numerous streams, which flow apparently devoid



THE ROAD BETWEEN THAMES AND COROMANDEL.

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of order from the mountain sides through wild canyons to the sea, have together produced within a very small area one of the roughest sections in northern New Zealand. To realise the character of its topography one should travel on horseback over one of the numerous tracks which cross the northern part of Hauraki, or connect Waihi or Karangahake, in the southern part, with the beautiful bays of the east coast. Better still, one should follow a gum-digger up and down over the steep volcanic hills, or pursue a prospector, as, armed with dish and shovel, he makes his way up one of the boulder-filled cascade-broken creeks of the interior, and pans here and there for the yellow metal.

I can think of no more delightful outing than that which a summer's cruise round the sparsely inhabited coast-line of Hauraki provides. Though for miles steep cliffs flank the sea and give no safe anchorage for even the smallest craft, in numerous places elsewhere, both towards the open ocean on the eastern side and in the more protected waters of the Hauraki Gulf on the western, shelter can be found among the islands which here and there appear along the coast, or in the calm blue waters of one of the many inlets. These inlets, stretching far into the interior, mark the swamping of the stream

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mouths by a land-depression which occurred, as one measures time geologically, in comparatively recent times.

By far the greater part of Hauraki is still in the wild state. Venturesome settlers have claimed small patches from the wilderness here and there along the coast and in the principal valleys in its proximity, while larger stretches of clearing have been made around the townships which have sprung up along the line of railway joining Thames to Karangahake and Waihi.

The kauri forest, which formerly grew on much of the lower country, and even stretched far up among the mountains, is now nearly all gone. Here and there one comes upon clumps of these fine old trees which have escaped the woodman's eye or which grow in such inaccessible localities that they could not, like the readily reached timber, be profitably hauled or jacked to streams and floated down in times of flooded water to the sea. Volcanic peak and plateau show in places but little timber of any sort, a thick growth of scrubby manuka having alone grown up to replace the forests devastated by fire. The vegetation of the valleys is among the most luxuriant in New Zealand—a wonderful growth of tawa, rewa rewa, and puriri, among which are scattered stately tree fern and majestic nikau palm. To



A GIANT POHUTUKAWA ON THE COAST OF HAURAKI.



THE CAMP AT ORAKAWA BEACH, NEAR WAIHI.

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all cling such masses of creepers and other parasites, that in places the bush is practically impenetrable.

Along nearly all the open sandy or gravelly bays of the sea-shore are scattered groves of broad-spreading giant pohutukawa, covered at Christmas-time with masses of crimson flowers, in brilliant contrast to their pale purplish trunks and their sombre grey-green leaves.

In the old days the coast-line of Hauraki was a favourite home of the Maoris, and in every bay one sees evidence of their former habitation. All along the coast are remains of ancient *pas*,¹ and scattered here and there lie piles of human bones—the ghastly evidence of some long-past and nearly forgotten Maori picnic.

One of the last, and, I should fancy, one of the largest, of these carousals took place at Port Jackson during the long-continued feuds between the Nga-Puhi of the Great Barrier, a large island lying just north of Hauraki, and the Ngati-Whanaunga of the mainland.

A woman of the former tribe had married a brave of the latter, and had gone with him to dwell near the present site of Coromandel. After some years of happiness the wife decided to visit her own people once more and show to them the superiority of her husband

¹ A *pa* is a Maori fortification.

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over her kinsmen. Her relations quickly noticed his excellence, and showed their appreciation by discourteously eating both him and his child. The wife waited her chance, and, despite a vigilant watch, managed to escape with her brothers in the night. After a trying journey, the *pa* of her husband's people was reached and the war-cry of revenge immediately raised. Soon a large flotilla of canoes filled with Ngati-Whanaunga and warriors of other tribes, who gladly joined an expedition so dear to the Maori heart, was on its way to Port Jackson. There they arrived during the night, and hid themselves in the thick forest covering the flat which bordered the broad sand-beach. In the early morning the smoke of a single fire, rising bluely above the green forest slopes of the mountain of Moehau, attracted the vigilance of the Nga-Puhi on the Great Barrier, and, thinking it was only the escaped woman and her brothers, they determined to set out at once to punish the fugitives and incidentally make for themselves a pleasant repast. Eight large canoes containing four hundred people departed, and, paddling quickly, soon covered the ten miles or so of water which lay between their home and the site of their proposed banquet. Scarcely waiting to beach their canoes, they dashed up the sand, thirsting for blood. The safely hidden

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Ngati-Whanaunga waited till the invaders had almost reached the bush, when they leaped from their hiding-place and dashed upon the enemy. Some engaged with the latter in battle, while others, making for the shore, took possession of the canoes, and paddled them out to sea, thus cutting off retreat in that direction. The fight was a short one, the Nga-Puhi were taken completely by surprise, and soon all who had not been killed were captured.

The conquerors did not rest long from their labours. A huge pile of stones was quickly collected, a great fire lighted, and soon there were roasting, not only those slain in battle, but most, if not all, who had been captured alive. Then there followed one of the most sumptuous feasts ever known in Maoriland, and days passed before the thoroughly repleted and avenged Ngati-Whanaunga returned to their homes.¹

It was a lovely calm morning in December when I first saw the scene of these cannibalistic bacchanalia. The piles of stones were partly overgrown, but those visible were still black

¹ This story was told me by Hugh Macpherson, an intelligent Maori half-caste, mentioned elsewhere in this book. For details of the great fight at Port Jackson, and of numerous other battles between the Nga-Puhi and the tribes of the Hauraki Gulf during the period from 1770 to 1840, see "The Peopling of the North," by S. Percy Smith, in the *Journal of the Polynesian Society*, vols. v. and vi., and *The Peopling of the North*, by the same author.

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from the great fires of a century or less ago. All around human bones lay strewn. Near by pohutukawas grew, the flowers a blood-red monument of the massacre. Behind stretched green pasture-land and beyond towered the mountains. In front lay the serene waters of Port Jackson, dotted with fishing craft and a single tiny steamer. A few Maoris, fat, unwarlike, and dressed in dirty overalls, lolled about. So peaceful, so thoroughly unbarbarous appeared the scene that it was impossible at the moment to transport oneself backward on a magic carpet of the mind and imagine those awful scenes of bloodshed with the howls of rage, the shouts of victory. Some years later, however, I had reason to picture in my memory that nearly forgotten battle.

I was passing the Christmas holidays camping in a friend's cottage on the lovely bay of Wharekawa. He, the Maori school-master, and the only white man living in those parts, had gone away for a change, and had lent us his house in his absence. There are comparatively few Maoris living near the sea, but some miles inland a number of settlements lie scattered over the lower valley of the Wharekawa stream. Through these our genial Irishman, Cadigan, had passed on his way to join the Christmas party, and, true to his national

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instinct, had hospitably invited one and all to visit us on Christmas night. Unfortunately, he neglected to inquire as to whether or not we had food sufficient to appease the multitude, for an invitation to the Maori means a feast. On the appointed evening young and old arrived. At first they were interested in our Christmas-tree, and in the masques which we had donned for their entertainment, but later, at first quietly, then boldly and forcibly, demanded food.

As darkness came down, some one suggested a *haka*¹; a hundred strong, young and old, they drew up on the little flat, and moving their hands, their legs, their tongues, and their heads in perfect time, they danced, emitting heathenish sounds meanwhile, the ground shaking with the quick, steady movement of the swaying bodies.

The setting was superb for so terrifying, so awe-inspiring a spectacle. In the background, dark, gloomy, and bizarre of outline, rose the sacred peak of Ruawhero. Above, a few stars glimmered in a darkening greenish sky. In front a flickering bonfire lightened from time to time the weird, intense faces of the dancers. Some of the younger ones had in the beginning, in prospect of the excitement of the dance, stripped off portions of their clothing, and, as

¹ War dance.

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they warmed to the warlike exercise, even the oldest followed suit, so that when it ended, panting and perspiring, they looked much fiercer, much more savage, than the mild, fully clothed creatures who had arrived an hour or so before.

It was in fact a moment when one might be forgiven for recalling the slaughter at Port Jackson; and, gazing on the frenzied gesticulations and wild faces before me, I must confess to a chilling of the blood, and a feeling of alarm, lest these dusky fellows, still half savage, should become wholly so, and wish to make a meal of us for our lack of preparation.

Fortunately, at this juncture, the resourceful Cadigan announced that the school-house was ready for a dance. Thither every one speedily repaired, and all night long the merriment continued. Meanwhile, nets in the bay had been visited and emptied, *kumaras* had been dug, and the adjoining *whares*¹ ransacked for food, to which we added the small quota we could spare from our limited store. It was quantity rather than quality our visitors wanted, so by morning all had departed, thoroughly pleased with their Christmas entertainment.

Soon after reaching Hauraki I remember

¹ Huts.



MAORI GUM DIGGERS.

Photo, N. Z. Tourist Dept.



THE COAST OF HAURAKI, NEAR THAMES, WITH SEA-WORN CLIFFS SHOWING
LAND ELEVATION.

RAMBLES IN HAURAKI GOLDFIELDS

thinking how thoroughly, within a few decades, the Maori had altered to fit the changed conditions of European settlement. I was walking along a bush track near Coromandel, in a virgin forest, when a buxom Maori dame of huge proportions, with plaited black hair and tattooed chin, stolidly approached. I determined with the enthusiasm of the neophyte to air upon her the one or two words of Maori which had recently been acquired at Rotorua. "Tenakoe," I said, beginning with the Maori greeting. The lady stuck her great dusky paw in my face, shook me warmly by the hand, but, to my surprise, exclaimed, "Good-day. I not speak Maori."

A week or so later I had occasion to change this first impression of the rapid evolution of the Maori. We were riding through the old native settlement of Wairoa, when, rising out of a little valley we had crossed, we came suddenly upon a group of Maori women squatting and lounging in the shade of an old fig tree. It was the gayest party, notwithstanding the fact that from an adjoining *whare* came such cries of grief and lamentation that it seemed impossible to be happy. I was about to inquire the reason of the merriment on the one hand, and of the sadness on the other, when suddenly the laughers jumped to their feet, and dashed

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to the hut, bursting into tears as they went. At the same moment another group of women sallied forth and, quickly drying their tears, made for the fig tree, where within a few seconds they were laughing and chatting as if sorrow were unknown to them.

It was a *tangi*,¹ I learned, and all had to take their turn lamenting over the great chief, whom they had heard had died in a distant part of the country.

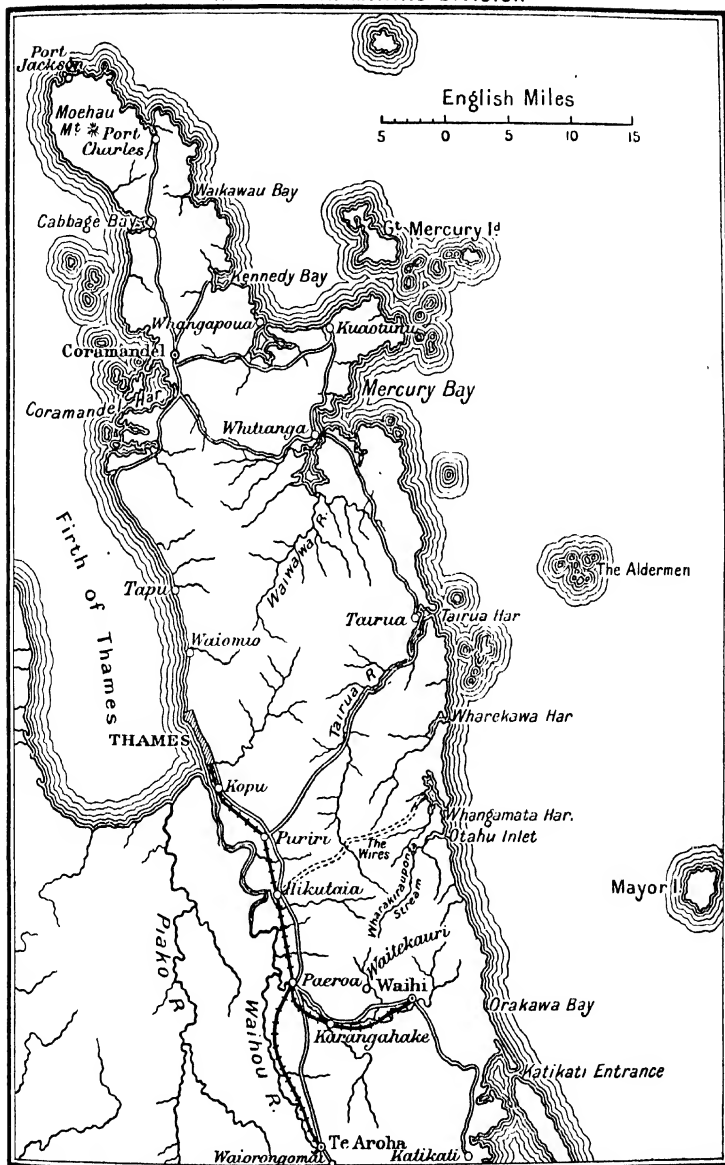
If we realise how near the district is to the city of Auckland, one of the oldest settlements in New Zealand, it is perhaps remarkable that it was not until the middle of the last century that any gold discoveries were reported from Hauraki. No doubt the opposition of the natives to the whites was at least in part responsible.

The mining camps of Hauraki are widely scattered and many in number. As is the case in nearly every other goldfield, very few of these were ever really important, and now the producers are only five or six in number. The history of the rise and fall, the ups and downs of these various settlements, due in the first place entirely to mining, is full of interest, and at times tinged with romantic episode.

In 1852, encouraged by the wonderful stories

¹ A sort of wake.

THE HAURAKI MINING DIVISION



Stanford's Geog^l Estab^t, London.

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which reached New Zealand from time to time of gold discovery in Australia, a committee was formed in Auckland to encourage prospecting for the precious metals in the northern part of the colony. The reward of £500 offered by the committee for the first discovery was claimed within two weeks by Charles Ring, who produced specimens of gold-bearing quartz obtained from a small creek near Coromandel, which hitherto had been merely a Maori settlement, where an occasional ship stopped to load the wonderful kauri timber growing in the flats close to the sea margin.

Arrangements were immediately made with the Maoris who owned the land, and within a few months three thousand men had pitched their tents in the forest of the new Eldorado. However, the "rush" did not prove successful, as only £1200 worth of gold was obtained in six months, and there followed a general exodus from the camp, much to Ring's disgust, as he thus failed to receive the expected reward.

There was for a time little activity in mining matters in Hauraki. However, in 1861 a second stampede took place to Coromandel, following on the discovery of a highly auriferous quartz vein on the property now held by the Kapanga Gold Mining Company.

Mining and prospecting were continued more

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or less vigorously at Coromandel until the discovery of veins of extraordinary richness at Thames deprived Coromandel of a large part of its population. The first discovery was made in 1865, but it was not until 1867, when successful overtures had been made to the Maoris, who lived here in great numbers and were inclined to be unfriendly, that the area was thrown open for mining.

In August of the same year four prospectors—Hunt, White, Clarkson, and Cobley—discovered a reef of great richness in Kuranui creek—an event which brought thousands of gold-seekers from far and wide. The field resembled in many ways a placer diggings, owing to the fact that the precious metals occurring free in large and extraordinarily rich patches in outcropping veins were rapidly won by not much greater mining or metallurgical skill than would be required to pan alluvial gold from gravel.

The town grew with amazing rapidity. Within a year, it is said, no less than 40,000 people were on the ground, the same adventurous polyglot population formed of the worst and the best, the most inexperienced and the most proficient, that one finds in any new mining camp, where rich “strikes” have been made.

The rapid returns made by the simplest crushing machines were remarkable. By the

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end of 1868 the yield had exceeded 83,000 oz., valued at more than £200,000.¹

From the early days of their successful development (1861 in the case of Coromandel, and 1867 in that of Thames) the history of either resembles that of any other mining locality in which the values occur in more or less isolated bonanzas in many different reefs. Both fields have seen many ups and downs, now flourishing and prosperous owing to discoveries of rich shoots, again deserted and despondent with those patches worked out and no others as yet discovered. Coromandel was booming when the Tokatea Hill diggings were active from 1870 to 1878, and when at the same time the wonderfully rich shoot in the Green Harp Reef (Hauraki) claim was giving forth its treasure. However, it reached the height of its glory in the boom days between 1894 and 1898, when English and Colonial money was being widely expended and fabulously rich patches in the Hauraki mine were being mined.

The mining camp of Kuaotunu, which started in 1889 on the opposite side of the peninsula, at first promised to rival Coromandel in metal output, but it soon became relatively insignificant.

Thames climbed to the height of its pros-

¹ "Second Report on Thames Goldfield," by Captain Hutton, vol. v. of the *New Zealand Geological Survey Reports*, 1869.

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perity in 1871, when the magnificent sum of £1,188,708 was produced in a single year. Most of this great output was yielded by the wonderful Caledonian shoot—one of the richest recorded in the annals of gold-mining. Since that date the decline in the field has been intermittent but gradual. Strangely enough, the output of the Thames reached its minimum during the year 1897–98, when elsewhere in Hauraki the prosperity of the gold-mining industry was at its height, owing to the rich developments in the Hauraki mine Coromandel, and to the solid steady development of the great mine at Waihi. During 1905–6–7, when the now famous Waiotahi shoot was being developed, Thames got a new lease of life. This shoot has now all been mined, but the town, though perhaps depressed, is ever hopeful and expectant of other great bonanzas. However, Thames, beautifully situated, and with a superb climate, is the gateway of a rapidly rising agricultural district, and as such is no longer entirely dependent on the fickle fortunes of mining.

As early as the summer of 1869, the daring prospector, flushed with the success gained at Thames and Coromandel, had pushed southward and eastward, hoping to discover new bonanzas rivalling in wealth those of the two older centres. As subsequent events proved, he

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was, however, to be doomed to disappointment, for in these parts of the Hauraki gold-fields he was to enter an area where mining development meant a heavy capital expenditure almost from the outset. Here, even the richest ore carried a gold value of only a few ounces to the ton, instead of a few ounces to the pound with which fortune had accustomed him at Thames and Coromandel. Here, too, the intrepid pioneer found his initial explorations barred, not only by the difficulties presented by a rough, densely forested, trackless country, but by the harassing tactics of the Maoris, who were determined to resist the incursion of the *pakeha* into territory as yet not alienated to the Crown. Some, however, of the more venturesome of the prospectors who had dared the terrors of the unknown, and had managed in some way to elude the vigilance of the natives, brought back such wonderful tales of the richness of the forbidden land that the Government was ceaselessly pressed to conclude negotiations with the Maoris. At last, on the 3rd of March 1875, the area was declared open, and immediately there followed a wild stampede to the Karangahake Gorge where much prospecting had surreptitiously been carried out prior to the opening of the field. Permanent development was here, however, long delayed, and it was not till

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the inauguration of the cyanide process in 1894 that successful mining at Karangahake may be said to have begun. Now the very satisfactory profits being made from the rich shoots in the Talisman mine have placed it in a flourishing state. Greatly disappointed at Karangahake, the prospectors passed through the Karangahake Gorge and, pushing up the Ohinenuri, entered the lower Waitekauri Valley. This for a time proved more attractive owing to the occurrence of occasional patches of richer material within the lower-grade ore. No successful mine was, even here, opened up until 1892, when the Golden Cross Reef in the upper part of the valley was discovered. By this time both of the adjoining districts—Maratoto and Komata—had been prospected by men who found their way through the thick bush into these mountain valleys.

In April 1875 gold was discovered along the lower Tairua, while in August 1880 some prospectors located promising reefs at Te Aroha—a section of the Hauraki district which was declared open in 1882.

For many years past, the most productive camp in the Hauraki goldfields has been Waihi. It seems remarkable that nothing was known of the potentialities of its great lodes before 1878.

The first prospectors to pitch their tent at

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Waihi are said to have been Daniel Leahy and Scott O'Neill, the discoverers of payable gold at Waitekauri, but neither these nor two others who soon followed paid any attention to the Martha lode, the only outcropping vein of the great system upon which the subsequent success of Waihi was based, but confined their efforts to the Union-Silverton Hill, about half a mile to the south-east. To John M'Combie and Robert Lee is to be ascribed the discovery of payable gold in the Martha lode, a discovery destined to transform the fringe of the desolate manuka-clad plain stretching southward from the mountains into a populous and prosperous mining settlement.

M'Combie and his mate were not to enjoy their new discovery undisturbed. The hill on which the great white outcrop showed had long been used as a burial-ground by the natives, who strongly objected to its being occupied by the whites.¹ While the first tunnel was being driven below the outcrop, a force of men and women attacked the prospectors, who had to resort to all sorts of artifices to rid themselves of their tormentors. These trials were in time overcome, but the metallurgical difficulties which confronted the pioneers with their limited

¹ See account by John M'Combie in copy of *Auckland Herald*, 1910.



Photo, Waihi Gold Mining Co., Ltd.

THE TOWN OF WAIHI, WITH THE OPEN-CUT OF MARTHA HILL
SHOWING IN BACKGROUND.



Photo, N.Z. Tourist Dept.

A MAORI KAINGA.

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capital were less easily surmountable. In vain M'Combie tried to interest Auckland speculators in his enterprise. It did not appeal to them, as at the time they were familiar only with the bonanza type of ore-body.

M'Combie and his mate despaired for a time, abandoned their claim, and turned their attention to Te Aroha, whence news had come of a rich discovery. In their absence two Coromandel prospectors, William Nichol and Robert Majurey, visited the workings and were so favourably impressed with the showing that they induced their friends to apply for several holdings along the line of the Martha lode. This involved a plaint against M'Combie and Lee for forfeiture of their claim on the grounds of non-working. Rather than oppose this suit, the original prospectors unconditionally surrendered the ground, and thus, unfortunately, were to reap no reward from what has proved much the greatest gold discovery so far made in New Zealand.

The operations of the Martha Extended Gold Mining Company, formed in Auckland to work Nichol's and certain adjoining leases, were unsuccessful, mainly because of the inability to recover the very finely divided gold which the ore contained. Thus, incredible as it may seem in view of the magnitude which subsequent operations have assumed, the whole of the

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Martha Hill property was purchased for £3000 in 1890 by the Waihi Gold and Silver Mining Company which had been formed in London to work the lodes first prospected by Leahy and O'Neill on the Union-Silverton Hill. Even now, notwithstanding the fact that many new reefs were discovered as exploration proceeded downward, success was not attained. The precious metals could not be extracted at a profit, and several metallurgical methods were tried without very satisfactory results until the adaptation of the cyanide process in 1894 at last brought signal success to the mine. After that event the Company, year by year, increased its output until in 1909 the yield totalled the huge sum of £959,593, of which no less than £446,316 was distributed in dividends. Since that date the output has diminished owing to the impoverishment of some of the lodes in depth, and during the last few years some of the 350 stamps, which at the height of prosperity crushed daily about 1300 tons of ore of an average grade of $\frac{1}{2}$: 11s., have been thrown out of commission.

In 1894, partly owing to the establishment of the Waihi Company as a great profit-making concern, and partly owing to the discovery of extensive and wonderfully rich bonanzas in the Hauraki mine at Coromandel, a great mining boom began in the Hauraki goldfields. During

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the succeeding four or five years a relatively enormous area of country of proven gold-bearing character and otherwise was pegged. Company-promoting, much of it absolutely unwarranted, was the order of the day. As a result many small mining camps sprang into existence, but few of which have ever passed the prospect stage.

Altogether the Hauraki goldfields have, up to the end of 1912, contributed the huge sum of £21,369,611 sterling in gold and silver to New Zealand's exports. Of this total no less than £10,871,947 has come from Waihi; of the latter amount all but £614,538 (the output from the Waihi Grand Junction) came from the Waihi Company's holding, and by far the greater part from the Martha Hill—the property for which the original prospectors received nothing, and the subsequent holders obtained only £3000 !

I spent a large part of my six years' residence in New Zealand in Hauraki. My good friend Colin Fraser alone carried out the geological explorations of the western and southern part of the peninsula,¹ but I was with him from time to time, and together during the last year and a half

¹ *Geology of the Coromandel Subdivision*, Bulletin No. 4, New Zealand Geological Survey, by Colin Fraser and J. H. Adams. *Geology of the Thames Subdivision*, Bulletin No. 10, New Zealand Geological Survey, by Colin Fraser.

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of my stay we geologised in the eastern part of the mining division, which includes the gold-field of Waihi.¹

No other part of New Zealand, save perhaps Westland, where Fraser and I had our first rough experience of the back-blocks, holds so many delightful memories for me as does this rough sea-bordered mountainous area. Often do I long to be back once more with Fraser or Graham,² at the base camp of our party on the shores of the inlet of Otahu, where, tired after the week's tramping in the hinterland on flying camp expeditions, we would congregate on Sundays to recount our geological experiences; often do I wish to be clambering with Cadigan past rhyolite crag and andesite peak, through the wild gorges of the Waiharakeke or far up the third branch of the Tairua where great volcanic mountains tower.

During our explorations there was scarcely a track in all Hauraki which we did not follow, scarcely a streamlet which we did not ascend; yet by the time we had finished our labours we had come to realise how little we knew of this geological puzzle, this tangle of volcanics break-

¹ *Geology of the Waihi-Tairua Subdivision*, Bulletin No. 13, New Zealand Geological Survey, by J. M. Bell and Colin Fraser.

² K. M. Graham, at the time chief Topographer of the Geological Survey.



FAR UP THE THIRD BRANCH OF THE FAIRUA WHERE GREAT
VOLCANIC MOUNTAINS TOWER

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ing through or overlying folded sedimentaries, and all in most of the area effectively hidden from examination by a vegetation as luxuriant as any in the tropics.

In joy as in misery, in sunshine and storm, the work was slowly accomplished. As a rule the weeks sped by uneventfully, though sometimes there was incident to recount about nomad gum-digger or prospector whom we met in our wanderings, or some adventure which happened to ourselves to relate as we joined round the fireside on a Saturday night after a week of travelling.

When camped or working in the smaller streams flowing in narrow deep valleys from the mountains, the fear of floods was constantly in our minds in times of rain, especially where we knew the headwaters were dammed to hold back water to float down the kauri logs. While examining the old Royal Standard mine, near the headwaters of the Wharikarauponga, I had a scare which made me think respectfully of the dimensions even a small stream could attain in flood. Cadigan was with me, and we had sought refuge in a long-deserted hut, just above the old mine workings; there were dams both above and below us. The hut was by no means rain-proof, but it seemed to stand fairly well the two or three days of mild rain which preceded

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the deluge. The latter came on during the night in a spectacular thunderstorm. I was awakened by a terrific roar which caused me to jump from my bed and make for the nearest window. The hut had stood a few feet back from the water's edge, and two or three feet above it when we went to bed, but now, in the brilliant lightning which dispelled the inky blackness from time to time, we saw that the waters surged all around us, and needed but a foot or so to flood into the room where we, with our faces glued to the pane, stood terrified. The dams above had broken and the waters were still rising. What was the best thing to do? We knew the old building could not stand very long the ceaseless onslaught of the waters. Still, we did not wish to leave it for the shelter of the adjoining hills. It was doubtful whether we could stand against the furious waters, or if in the occasional spasms of light we could steer our way in the changed conditions among the pits and surface shafts of the old mine workings. While we were thus debating, another terrific roar sounded. Aghast we looked at each other for a moment. What was now to happen? Then almost immediately we saw the waters had ceased to rise. The log-jam, damming the stream below, had broken. Breathing freely, we realised we were safe !

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Eastward of Thames and Coromandel, and northward from Waihi, the population of Hauraki is sparse in the extreme—only a few hundreds scattered here and there along the sea coast and lost in the valleys among the wild mountains of the interior. It seemed to us, as we wandered from valley to valley and learned to know each mountain trail as a villager knows his native streets, that there was an interest about the Hauraki back-blockers, giving them a spicy quality which made up for their lack of numbers. How often some one of them, no matter how poor, showed us a kindness we could never repay ! How often we were amused by their ways, as they were by ours—a mutual arrangement assuring a double happiness !

Great favourites with us all were the Schaeffers—who kept the tiny gum-trading store high up on the slopes of the great rhyolite peak of Puketaiko, in the very heart of Hauraki. Numerous tracks lead close by—one over Gum-digger's Saddle to the valley of the Lower Tairua—another by the Otamakitahi to the upper part of the same river, and still another passes right across the valley and over the high hills on either side from Omahu station on the railway to the west, to the inlet of Whangamata on the east. The site of the store was well chosen to capture the small amount of trade

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which Maori and Croatian gum-diggers brought thither, but it would have been hard to find a drearier setting. The scarred mountains bereft of vegetation by forest fires rose gloomy and forbidding immediately behind ; around bristled the huge stumps of the kauri—horrid monuments to a forest once so splendid and gone for ever. Within, in marked contrast, was the cheeriest scene.

Often in summer we would arrive hot and panting after a wearisome drag up mountain slope or boulder-filled stream. Immediately the kindly Frau had produced icy-cold hop beer—endless in quantity and elixir-like in quality. Or in the autumn or winter when the icy wind blew the rain about us in sheets, almost freezing us as we walked, we would draw nigh to the tiny slab hut with a feeling of joy. For the tea-pot was never empty, the tea always fresh, and the scones which went with it just cooked—at least, thus it seemed !

As we warmed ourselves by a fire so vast in its proportions that it filled one end of the hut, and a six-foot log lay snugly within, the sprightly, if ample, Frau had wonderful tales to unfold. Meanwhile “mein Herr” conducted a business with our men as lively as her tongue, or traded with some passing Maori or Croatian in commodities as varied as could be found in a city store.



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In a tiny hut half built out of an old kauri stump, situated at "The Wires" near the headwaters of the Tairua, lived Mathers and his wife. The flat near by had hummed with life when the kauri was being cut, and later when the gum was being dug, but now not even the whirring of the telegraph wires, which had given the locality its name, relieved the dulness of the place. In the brisk old days Mrs. Mathers had kept the store around which local life had centred, but now all had gone save herself and the man she had recently chosen. I remember the first time we saw her. It was a bitter day late in autumn. Cadigan and I were traversing the Tairua, examining the rocks meanwhile, when rounding a bend suddenly we came upon a very old woman, wearing a man's hat, a man's coat—much too large for her tiny wizened frame—a short tattered skirt, and a pair of long rubber boots. Her thin grey hair hung about her dark wrinkled face, but it did not hide a single piercing black eye, nor the bandage which covered the other, giving an evil expression. For a moment she gazed at us in surprise on our arriving from a direction whence few had come for many a day. Then in a shrill strident voice she plied us with questions, begging us at the same time to follow her inside, where milkless and sugarless tea was shortly forthcoming.

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It was all she had. Her old man had gone, so she said, to bring in supplies from the railway, while she stayed behind to dig for gum. "Shure! there must be some one to keep the pot a-boiling," she told us in a strong Hibernian accent.

About one thousand feet below Schaeffers', and some three miles nearer the sea, nestles under the protecting hills the store of Houlihan, the gum-trader. In former years when the neighbouring Luck-at-last mine was flourishing Houlihan flourished likewise, but now his trade languishes with the cessation of mining and the decadence of gum-digging. Numbers of Maoris, however, still lounge about, and even a white or two make the home of the genial Irishman their headquarters. Chief among the latter is Pain-Killer Brown, famous for deeds of strength in days gone by, and now remarkable for the quantity of that patent medicine which he can consume.

One cold autumn afternoon, as the sun was sinking below the western hills, my wife, who had been camping for a few days with me on the Tairua, reached Houlihan's gum-store on her way to our main camp at Otahu. As I had work farther up the Tairua, where, owing to the roughness of the stream she could not accompany me, it had been necessary for her to return alone

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with our Maori boy, while Cadigan and I had continued our journey. She was late in reaching Houlihan's, owing to a variety of accidents which had happened to the pack-horse, and because she had delayed longer than she should over the tea-pot of the genial Frau Schaeffer.

She was about to ride past Houlihan's, when the Irishman burst forth to announce that the tide was high, and that it would be madness to attempt to cross before dark the mud-flats of the inlet of Whangamata, which intervened between his store and the camp. She had to choose between spending the night unchaperoned at Houlihan's, or with a multiplicity of her own sex at an adjoining Maori *pa*, where at the moment there was great excitement owing to a recent attempt at suicide of one of its fair ones. Accepting the Irishman's offer of hospitality, she was soon in the shop, busying herself as best she could. Scarcely a white woman had been there since the wife, a few years before, had gone to the Auckland Hospital, never to return. She felt the sadness of the man's lonely life as she looked about, seeing signs of former feminine habitation, and realising how much it was still needed. "Clean out the cottage for the lady quick and dirty," shrieked Houlihan to a number of Maori boys who hung about waiting for orders. Then in a lower voice to my wife, "I

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ain't no cook, but I'll slap a meal together for you somehow !” If the food was not perfect and the bedchamber not spotless, these small defects were swamped in the cordiality and warmth of her welcome.

CHAPTER III

MAYOR ISLAND

TWENTY miles from the mainland of the North Island, far out in the storm-tossed waters of the Bay of Plenty, lies the lonely speck of land known as Mayor Island, so called by Captain Cook, who first sighted it on Lord Mayor's Day (9th November). The island is rarely visited, not so much on account of any great difficulty to be encountered in reaching it, but rather owing to the fact that it lies off the main traffic route, and is seldom seen even by the passing steamers.

Over a century ago the island was the home of a section of the Ngai-Te-Rangi tribe of Maoris, who cultivated on the very limited areas of flat land their fields of kumara, tawa and maize, and their orchards of peach and cherry and even fruits which could not stand such mild frosts as occasionally occur on the adjoining mainland. Tempted by reports of the wonderful crops obtained from the fertile soil and of the abundance of the fisheries on its coast, the island was

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invaded by Maoris from the adjacent shores of Hauraki. The islanders made a valiant defence, and for a time were able to hold back the invaders. At length they were overcome, the greater portion of their number was killed, and the few that survived sought refuge among a friendly tribe on the mainland. About the middle of the last century the island became the resort of whalers, who found in it a convenient base from which to scour the adjoining seas.

Like most of the islands off this part of the coast of New Zealand, Mayor Island is an extinct volcano, maintaining to a remarkable degree after centuries of inactivity the almost perfect outlines of its low and somewhat irregular cone. Towards the middle of the island two lakes joined together by a swampy stream are enclosed within the crater, from which in places rise steep walls of obsidian lava and breccia. The island is about seven miles from north to south, and rather more than half as wide from east to west. Small patches of flat land border the lakes before mentioned, and occur near Otu Bay, to the south-west of the island.

We chose a morning of wondrous brilliance to leave our mainland camp, amid the pohutukawas bordering Orakawa Bay, for Mayor Island. The sea was unusually calm but disturbed by great swells, the breakers from which licked the

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sands near the camp, and told of the storms experienced a few days before. The first attempt to land us on the launch by which we were to travel was not successful, the small surf-boat being overturned in the curling waves. We rescued both craft and rower from the surging back-wash, and a second attempt to embark from behind the shelter of a friendly rock proved successful.

I shall not dwell on the two and a half hours' journey in the little craft,—no less smelly than any other gasoline launch,—across the oily, shimmering water, rising and falling unpleasantly in great unbroken swells, but shall pass to the delights of our arrival in Otu Bay—where we made our headquarters for exploring the island. We cast anchor at a depth of ten feet in the bluest possible water, which magnified every tiny pebble to boulder size, and made herrings look like king-fish as they swiftly sped among the waving seaweed. What strange forms were visible in the limpid water as we peered below it! Jelly-fish of varied hue floated near the surface, green sea-urchins clung to the rocks below, and shoals of fish darted swiftly away with the noise of our approach. The cliffs of volcanic glass bordering on either side the outer part of the little bay sparkled brilliantly in the sunshine. Above, patches of the flaming crimson flowers of the pohutukawa made marvel-

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lous contrasts with the varied greens of an almost tropical forest. We landed on the beach of shelly sand at the foot of the bay, marvelling meanwhile at the stately beauty of the gnarled and twisted trunks which grew there, and wondering what stories of war and bloodshed each could tell if it could speak.

We were not alone on the enchanted island—two parties were there, and how different from each other! One consisted of two old Maoris, dignified and of impressive mien, who had come thither from a native mainland settlement to dry their winter's store of fish and to tend the kumara crops which, like their forefathers of old, they grew in the fertile soil. Western civilisation was represented by a number of Auckland youths who, on a boating tour along the coast, had landed for a day to desecrate a paradise with their debauchery, bad language, and irresponsible devilry, and to make a wholesale slaughter of the native game which here found refuge from the advance of man. Fortunately, they were leaving just as we arrived, but not before they had set fire in numerous places to the dried bracken which clothed the more open of the mountain slopes, and which formed tinder to be driven by the wind and spread havoc and destruction in the forests of the adjoining valleys.

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The old Maoris received us with suspicion, refusing absolutely to permit us to erect our tents beneath the larger spreading trees. These, they said, were hallowed, for from them had hung, till dry, the bones of their illustrious dead. We respected their wish, and soon they became more friendly towards us, but not to the extent of telling whence came their supply of water, though they gave us what little we required. We knew they did not draw it from a point about three miles down the beach where a jet of clearest water issued from the cliff. We supposed that they hid from us the location of a spring near by, lest we should feel inclined to remain on the island, as the whalers had done before us. The deserted boiling-down place of these former inhabitants lay half-ruined upon the beach, while on the cliffs above the decaying timbers of many collapsed Maori *whares*, and the overgrown orchards testified sadly to a still older habitation.

The two old Maoris watched us solemnly as we ate our luncheon on the beach, joined us in a cup of tea, and later directed us to the old track which led up a densely wooded glade towards the interior of the island. Following this track we soon emerged on an open spur, and for a time had difficulty in dodging the fires lighted by the visitors who had so recently left. About an hour's climbing brought us to the edge of

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the crater, the full expanse of which was but dimly seen through the now rapidly increasing smoke. The calm surface of the lake below it, seen yellowly in the smoke, looked like molten lava. With difficulty we clambered round the western and southern edges of the crater rim, the path being everywhere so much overgrown by small trees that it was almost impossible to pass through their tangled meshes, though but little of the bush in this part was as yet on fire. Near a low point on the southern rim of the crater we reached the top of a worn track, used by the Maoris of old as a highway from their kumara plantations near Otu Bay to their stronghold for a time within the crater. It led steeply down in a series of zig-zags cut over a nearly vertical cliff of obsidian breccia. Most of the floor of the crater is occupied by the lakes and swampy creek before mentioned, but towards the south, where the path from above reaches the level, grows a dense and scrubby forest, through which we had to make our way before reaching the lake-shore. Close to the lake an ancient clearing surrounds the remains of Maori huts, near which degenerate peach trees, small scarlet gladioli and roses grow as monuments of a cultivation long since passed away.

Panting with the heat, which seemed stifling

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within the crater, we paused but a moment to ponder over these sad relics of the past, before plunging into the lake. The cool, soft waters soon refreshed us, and we were able to grasp the astounding beauty of the scene around us. Close to the south, east, and west of the lake rose the sombre obsidian cliffs, while to the north a more gradual scoria slope seemed blood-red in places with the flowers of the pohutukawa. Above the rim of the crater the higher peaks of the Island to the north-west were partially wreathed in smoke—elsewhere was a sky of azure. Waterfowl paddled close to us as we swam, and seemed quite unmoved by our intrusion upon their privacy. Great white-breasted pigeons soared slowly above us, and made strange cooing sounds in the branches. Chattering kakas shrieked at us from the adjoining cliffs, and now and then flew across the lake to examine the invaders at nearer view. So calm and peaceful seemed the place that it was difficult to realise that we were on the scene of former carnage.

Leaving the lake we reached the crater rim at its lowest point—a narrow saddle, about a mile to the eastward of the place whence we had descended. From this point a fine view could be seen of the rough, rocky coast of Mayor Island, and of the sparkling blue sea, with, far away in the south, the dim haze rising from the

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active volcano of White Island. Leaving the saddle we travelled westward, climbing up over the steep, broken face of obsidian, each of us feeling like the hero of the old fairy tale—one of whose feats it was to accomplish, as we were doing, the ascent of a mountain of glass. Soon we joined the route by which we had come, and made our way back to the camp as best we could through the smoke of the slowly burning upper portion of the mountain. When we reached the beach the sun had set, leaving wondrous lights behind it in our little bay as a promise for a beautiful morrow.

Soon after the sun had risen we departed to explore the old *pa* on the cliffs above, pondering a while on our way over a great stone which lay upon the beach, stained by the blood of the victims of a great massacre, and at the cliff face, where the old Maoris told us a dreadful fight had long ago been waged between the invaded in the *pa* above and the invaders on the sandy beach below.

Early in the morning we lifted our camp and set out in the launch to examine the Island's shore-line. Travelling slowly we voyaged from bay to bay, passing round the numerous abrupt headlands of volcanic glass, marvelling at the myriad forms of cavern and grotto, of fantastic pinnacle and of rounded corrie, and steering



THE STACKS, TO THE NORTH OF MAYOR ISLAND.

MAYOR ISLAND

closely to the great stacks which stand, like the Old Man of Hoy, as sentinels to the north of the Island. In vain we scanned the line where the waves gently lapped the foot of the cliffs for the great cave, accessible only at lowest tide, in which the Maoris hide from the white man the bones and treasures of their dead. We stopped for a moment to note the hot spring which gurgles forth on a sandy beach beneath high cliffs of breccia in the long western bay. Then we set out for the mainland with a feeling of regret that we were leaving, but with a thankful and joyous spirit that we had visited what will ever remain in my memory as one of the most delightful spots I have seen—the wonderful lotus land of Mayor Island.

CHAPTER IV

AMONG THE VOLCANOES

FROM the most remote geological period, New Zealand has been rent by volcano and racked by earthquake. Volcanic fires rose from its earliest land, and, like beacons during the ages, have never, save perhaps for brief periods, ceased to glimmer. Throughout the length and breadth of the country one may read the record—here of a gigantic outburst changing completely for broad stretches the configuration of the land, there of a minor outbreak, leaving but slight mark on the face of the country.

Since Tertiary times, when volcanic activity reached an intensity probably unknown before, vulcanism has gradually dwindled. Now there are but few volcanoes actually active, or known to have been active within the historical period, though a much larger number appear to have been so in time considered recent from a geological standpoint.

In the centre of the North Island is situated



THE SINTER TERRACES OF ORAKII KORAKO.



TAUPO ALUM CLIFFS OF WAIOTAPU.

Photo, N.Z. Tourist Dept.

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the volcanic area, generally known as the Hot Lakes District, and named by Hochstetter the Taupo Volcanic Zone.¹ This zone borders a line of structural weakness extending in a north-east, south-west direction, and known as the Whakatane Fault. It has a general parallelism to the principal mountain chains of the North Island, to the lofty chain of the Southern Alps, and to a submarine ridge stretching from the East Cape to and beyond the Kermadec Islands.

Within the Taupo Volcanic Zone, solfataric activity occurs in many places, more especially around the shores of the great Lake of Taupo, at Wairakei, at Orakei Korako, at Whakarewarewa, at Rotorua, and around Lake Rotomahana. In these parts are seen to a degree almost unrivalled elsewhere a wonderful display of hydrothermal phenomena—great geysers, spluttering mud volcanoes, hissing steam jets, noxious-smelling fumaroles, marvellously coloured pools, and sinter terraces of dazzling beauty. Surrounding most of the hydrothermal centres are Maori settlements, whose dusky inhabitants delight in bathing in the warm pools, gossiping meanwhile. The natural steam jets give a ready means of cooking food with a minimum of labour to a people who don't generally like work.

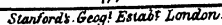
When Hochstetter visited New Zealand,¹ a

¹ *New Zealand*, by Ferdinand von Hochstetter.

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Maori chief, the great Te Heu Heu, explained to him how all these strange volcanic manifestations had originally appeared. Ngatiroi-rangi, one of the first chiefs to arrive from the ancient racial home of Hawaiki, early decided to explore the interior of the Island. Accompanied by a trusted follower, named Ngauruhoe, he set out and in course of time reached a range of lofty mountains. Wishing to obtain a better view of the country than was possible from the forest-covered plains, master and servant together ascended the highest peak of the range. On the summit both became numbed by the intense cold. Afraid lest they should freeze to death, the chief shouted to his sisters, who lived far away on White Island, to send him some of the fire from the plenteous store available there, which they had brought with them in two canoes from Hawaiki. The sisters, fearful for their brother's safety, immediately despatched the fire, which came in an almost straight line south-west along a subterranean passage and burst forth on the crest where the two sat freezing, in time to save the chief's life, but not that of his faithful servant. Hence the highest peak of the mountains of Tongariro where Ngauruhoe died bears his name in memory of his gallant conduct. The smoking crater on the crest of the mountain of Ngauruhoe

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shows where the fire issued, and the geysers, hot springs, and fumaroles to the north-eastward indicate the course of the subterranean passage, whence it came, and whence it still comes, to warm the traveller in these dreary parts.

Many volcanic cones raise their summits above the generally level stretches of the Hot Lakes District, giving, with the numerous lakes and rivers, and the varied hydrothermal wonders, a locality of singular topographical variety. Chief among these cones is the mountain of Tarawera, near Rotorua, to which a tragic interest is attached owing to its disastrous eruption in 1886, and the mountains of Ngauruhoe, Ruapehu and Tongariro, which lie close together south of Lake Taupo, and mark the southern limits of the Taupo Volcanic Zone.

Seventy-five miles to the westward of the volcanoes last named, and far beyond the confines of the Hot Lakes District, stands the isolated peak of Mount Egmont, which rises from relatively low country within seventeen miles of the sea,—a solitary sentinel above the fertile fields and forested slopes of Taranaki. Though not the highest mountain in the North Island, being nearly one thousand feet lower than Ruapehu, it is certainly the most imposing and most beautiful of the many volcanic peaks of the country. The wonderful symmetry of the



Photo. No. 1. Tourist Post.

TONGARIRO AND NGAURUHOE WITH RUAPEHU IN THE BACKGROUND.



RUAPEHU IN WINTER, FROM SADDLE BETWEEN NGAURUHOE AND RUAPEHU.

AMONG THE VOLCANOES

mountain flanks is interrupted on the south side by the relatively inconspicuous parasitic cone of Fantham's Peak, and on the north by the Pukewa ranges,—from the denuded crest of which Egmont itself arose.

According to Maori legend, Egmont, Tongariro, and Ruapehu were formerly three giants of tremendous stature, who lived close to each other in the centre of the island. Egmont, or Taranaki, as he is called by the Maoris, interfered in some way with the matrimonial relations of one or both of his brother giants, and to escape their wrath was forced to fly to the coast, where he now stands in lonely grandeur far from his former home.

During all my six years in New Zealand I was not on any occasion so fortunate as to reach the top of Mount Egmont. One attempt was made, but a storm arose shortly after we started, and we were forced to return without reaching the summit. However, under good weather conditions the ascent presents no difficulty whatever. A good track leads almost to the top, and there is a "rest-house" fairly high up the mountain side. The crater of the volcano, being above the level of perpetual snow, is always filled with ice and snow. Though the lava-flows on the mountain side seem to be of remarkably recent deposition, the Maoris have

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no record of any eruption, and the volcano is now, at least apparently, quite extinct.

Hochstetter describes some sixty volcanoes as occurring in the neighbourhood of Auckland City. Their cones give charm and character to the harbours of Manakau and Waitemata, as well as to the city itself, lying between them. Some of the cones consist entirely of scoria ; others are composed wholly or mainly of lava. Many have lost their characteristic form, but some have preserved their beauty and symmetry to a remarkable degree.

The most conspicuous of the Auckland volcanoes, Rangitoto, lies at the entrance to Waitemata Harbour. The gradual slopes of the mountain suggest that the lava must have been in a highly liquid state when it was poured forth. The summit of the mountain is formed by a broad open lava crater, within which lies a small and more recent scoria cone. Most of these Auckland volcanoes have apparently been extinct for a relatively long time, and there is no historical evidence of any activity since the Maori occupation of New Zealand. However, the fresh character of the rocks on the slopes of Rangitoto, and the almost complete preservation of its volcanic contours strongly indicate that this mountain, at least, must have been in active eruption within comparatively recent time.

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Inland from the Bay of Islands lies a district¹ in which relatively recent volcanic energy has built up lava and scoria cones and filled pre-existing valleys with volcanic material. Even at the present day solfataric action is still proceeding vigorously at the Ohaeawai Springs, where hot sulphur-laden waters are depositing mercury and gold-bearing sinters.

Some of the best-preserved cones in this district lie close to the shore of Lake Omapere. Te Ahuahu (1200 ft.) is a prominent cone composed of andesitic scoria, with a well-developed crater on its summit. Its finely preserved slopes show the remains of Maori fortifications—the site of many a hand-to-hand fight in the early days.

Close to Te Ahuahu is the curious rounded rhyolitic mound of Putahi. At many points towards its summit are narrow shaft-like holes—apparently old steam-vents. Many of these holes are shallow, but some are thirty feet and more in depth. One hole, which has been used by the Maoris for generations as a burying-pit, is at least one hundred feet, and possibly much more, in depth. The Maoris, in fact, believe that from it an underground passage leads below Lake Omapere, and forms the route taken by the

¹ *Geology of the Whangaroa Subdivision*, Bulletin No. 8, New Zealand Geological Survey, by J. M. Bell and E. de C. Clarke.

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departed on the way to the Te Reinga, near the North Cape, whence they continue their journey by canoe to the land of the hereafter. Often, while Edward Clarke and I were conducting our survey in the vicinity of Lake Omapere, we felt sorely tempted to evade, if possible, the watchful Maori, to descend with rope and ladder and probe the secrets of this curious, deep, natural shaftway ; but the natives closely guarded the bones of their dead, and scarcely ever let us pass from their sight, so that eventually we came wisely to the “sour-grapes” conclusion, that the stories of the depth of the hole, and of the wonderful Maori treasures said to lie at its bottom, were greatly exaggerated. Perhaps it was partly the evil smells from the bodies of decaying braves issuing from the orifice that brought us so easily to this sage conclusion !

Unfortunately for me, no opportunity ever arose for visiting White Island,¹ perhaps the most interesting of all the New Zealand volcanoes. The Island lies in the Bay of Plenty, some forty miles off the mainland. Its crater is in a constant state of solfataric activity, the ascending clouds of steam making the Island a conspicuous feature for many miles in every direction.

The Island forms a simple cone, with exceed-

¹ *Geology of New Zealand*, by James Park, p. 174 *et seq.*



Photo. A. J. F. 1891, D.S.

LAKE ROTOMAHANA FROM TARAWERA.



Photo. C. Spencer, Auckland

THE VICINITY OF MOUNT TARAWERA AFTER THE ERUPTION OF 1886.

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ingly steep slopes of andesitic lava and tuff bordering it on every side save the south. Here the crater wall is broken down, thus providing a ready means of access to the crater lake within. The water of the lake is of a vivid green, and is heavily charged with hydrochloric acid. The north-west corner of the lake presents a display of solfataric activity unrivalled even at the thermal centres of Rotorua and Taupo. At present sulphur is being mined on the Island. Some years ago a similar industry was carried on, but the workers refused to remain, so alarming were the hydrothermal phenomena around them.

Early in my stay in New Zealand an opportunity came for me to examine Mount Tarawera. The volcano forms a conspicuous three-peaked ridge, visible for miles in every direction, and is situated about twenty miles to the eastward of Rotorua, the chief town in the Hot Lakes district. The translation of its name, which means "Warm Opening," would suggest that the mountain had been in active eruption since the Maori occupation of New Zealand, and prior to the eruption of 1886, but, as the natives have no tradition of this event, the name may have referred to the numerous warm springs occupying the present site of Lake Rotomahana, lying within a distance of four to six miles to the south-west of the mountain,

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rather than to the crest of the mountain itself. Before the eruption of 1886, the mountain is said to have been covered with vegetation from base to summit, being held sacred by the Maoris and used as a burying-ground for their dead warriors. The presence of such abundant vegetation indicates that many years must have elapsed since the mountain had been previously active. The scar of any previous outburst had been well healed before the last outburst occurred. Thomas,¹ who investigated the nature of Tarawera immediately after the eruption, considered that the original cone had a mode of origin analogous to the domitic *puy*s of the Auvergne district in Central France.

It is a wearisome climb up seemingly unending scoria slopes to reach the top of Tarawera, but the view from the summit is so fine and extensive, and a study of the craters along the crest so interesting, that one feels amply rewarded for the exertion. In my case the ascent was made on a crisp, cloudless July day, and I was favoured by the companionship of a garrulous Maori guide, who unfolded from an apparently fathomless store the most wonderful tales of the eruption and of the events which preceded it whenever we stopped to rest.

¹ *Report on Eruption of Tarawera and Rotomahana, N.Z.*, by Professor A. P. W. Thomas.

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To the west-south-westward of Mount Tarawera lies Lake Rotomahana, filling a vent formed, or rather enlarged, in 1886. North-westward, and lying just at its base, is Lake Tarawera, surrounded by low volcanic hills rising to a height of 400 or 500 feet. North-eastward extends a series of low hills, clothed in volcanic ash, above which still rise tall white tree-stumps—ghastly tombstones of the eruption. Eastward and south-eastward from the mountain extend the monotonous stretches of the Kaingaroa Plains. All of these we could plainly see from the summit, and in addition, far beyond, standing out in sharp relief in the clear air, was a marvellous panorama stretching from the smoking cone of White Island in the Bay of Plenty, on the north-east, to the snow-covered peaks of Ngauruhoe and Ruapehu, dimly showing on the far south-western horizon.

It is difficult to obtain very exact information regarding the events which preceded the eruption of Mount Tarawera, though there are several good accounts of what took place immediately afterwards. Travellers who have visited Rotorua and have met that picturesque and interesting old figure, Sophia—the Maori guide and the heroine of Tarawera—will remember that, according to the somewhat embroidered and exaggerated story of that sprightly old lady, the

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Maoris noticed some premonitory warnings of the coming disaster. According to her account, some of the geysers near the terraces grew more active, others apparently became moribund, while the neighbouring lake of Tarawera rose, fell, and rose again.

The event does not seem to have been immediately heralded by any unusual atmospheric conditions; the barometer and temperature, as far as can be ascertained, being normal for the time of the year. The actual event, whatever may have gone before, came with appalling suddenness on a clear, cold June night, so much so, that the native dwellers near the Pink and White terraces, who had been unimpressed by previous symptoms, were unable to escape. At Wairoa, some eight miles distant to the north-westward, a number of people also perished. Some, however, survived, and it is from these spectators that the record of the chief events that occurred on that ever-memorable night is obtained.

The disturbances began with a slight earthquake shock about 12.30 A.M. (June 10). For the next hour earthquake shocks followed one another rapidly and with increasing violence. About 1.30 A.M. the eruption seems to have commenced on one of the summits of the mountain. About 2 A.M. a violent earthquake,

[illegible]

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followed by a loud and prolonged roar, occurred—which apparently rent the crest of the mountain. Afterwards a black cloud lay over the whole summit, ascending in a broad column which spread outwards at the top. Thomas in his report on the eruption thus describes the events which followed :

. . . Red bodies, which were doubtless red-hot fragments of ejected rock, were now seen darting from the black cloud, whilst lightning began to shoot out from it, accompanied by the roll of thunder. A red glow lit up the column ; and from time to time, as a fresh outburst took place on the mountain, the clouds were lit up with a stronger glow, and red-hot stones, described by observers as fire-balls, were seen falling around the summit. By this time the mountain seems to have been in full eruption, and presented a magnificent spectacle. The electrical phenomena must have been of a very remarkable character.¹

It is not clear at what time the eruption commenced at Rotomahana, as lofty hills obscure the view in that direction, both from Rotorua and Wairoa. It is probable, however, that the craters at Rotomahana were in eruption soon after 3 A.M., for about that time the earthquakes were especially severe, the heaviest one noticed happening at 3.20 A.M. There is a similar

¹ *Report on Eruption of Tarawera and Rotomahana, N.Z.*, p. 31, by Professor A. P. W. Thomas.

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uncertainty as to the hour at which the craters to the south-west of Rotomahana were opened.

The violent phase of the eruption seems to have ceased about 6 A.M., though at Wairoa mud or ashes continued to fall until 9 A.M.; while towards the east, the direction towards which the wind was then blowing, the fall of ashes and the consequent darkness were noticeable to a much later hour. For weeks afterwards, moreover, the ejection of fragmentary material proceeded in the immediate vicinity of the various craters.

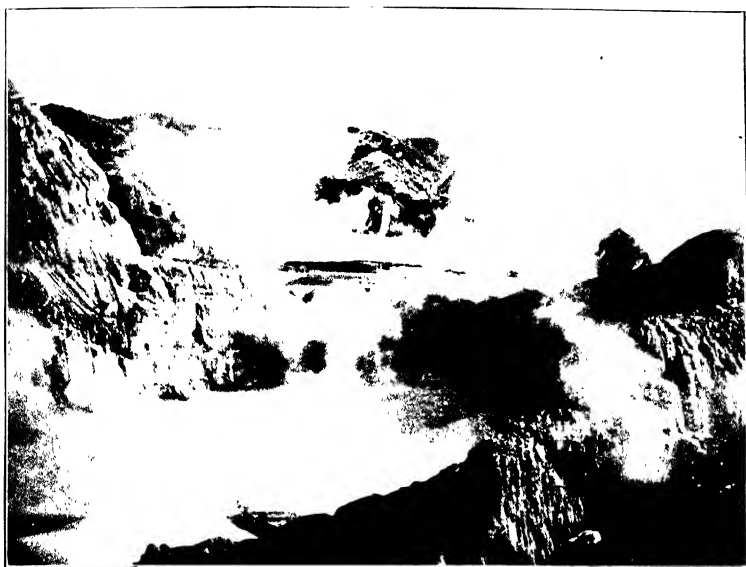
The effects of the eruption were many. Fortunately, the district was sparsely inhabited, and only one hundred and thirty persons—all but a few of whom were Maoris—lost their lives. The Pink and the White terraces, which were of great beauty and ranked among the wonders of the world, were completely obliterated,—their place and that of the old lake of Rotomahana, on which they were situated, being taken by a new crater. The latter eventually formed the present lake of Rotomahana to the south-west of Tarawera Mountain. This crater forms one of a line of similar features, running south-westerly along a great rift for some nine miles from Mount Wahanga, the most north-easterly part of Mount Tarawera. Along this rift many new hydrothermal features appeared, the

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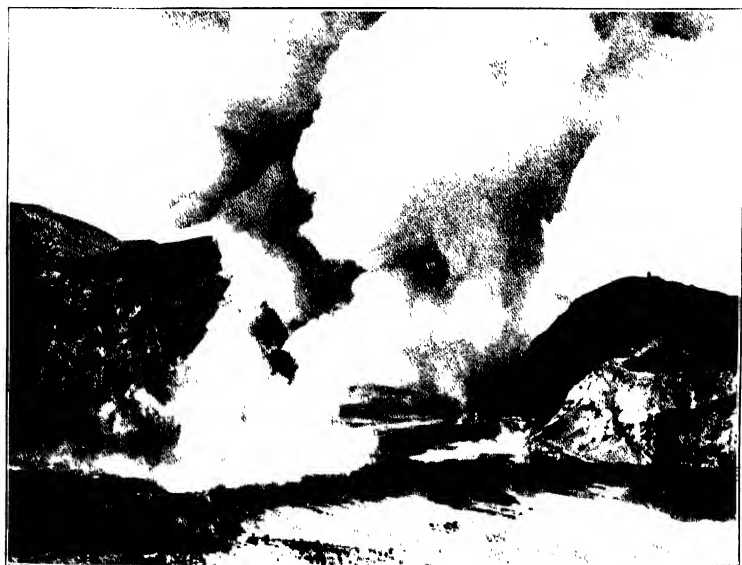
most remarkable being the great geyser of Waimangu, which was for years the greatest wonder of the thermal region.

Waimangu¹ was not discovered until July 1889, and is thought not to have been active much before that date. From the time of its discovery until July 1904, it played nearly every day. Then for seven weeks and five days it remained dormant, to break out again and give exhibitions almost daily until November 1st of the same year. Since that date the great geyser has never again fully displayed its energies, though there have been spasmodic outbursts from time to time. The eruptions from Waimangu were gigantic in their proportions : at the finest outbursts, mud, stones, and even huge boulders, were ejected vertically into the air in a column of dirty black water. Though accurate data relating to the measurements of these outbursts are difficult to obtain, the highest is said to have ascended to a height of about 1500 feet above the mouth of the geyser, and to have carried a volume of 800 tons. The visual effect of the great column, as it rose in the shape of a huge cauliflower-like mass, showering mud, stones, and boulders back into the water below, and even high up on the surrounding walls, must

¹ "The Great Tarawera Volcanic Rift" *The Geographical Journal*, April 1906, by J. Mackintosh Bell.



CRATER OF WAIMANGU GEYSIR, LOOKING TOWARDS TIRING PAN FLAT.



STEAM CLOUDS RISING FROM WAIMANGU.

Photo. N. J. Louist Dept.

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have been awe-inspiring and wonderful, while the thunderous roar must have given an infernal touch to this remarkable phenomenon.

Though lavas rose to the surface at Tarawera Mountain itself, their extent and consequent influence on the character of the topography were extremely limited. The eruption was essentially one of fragmentary material. Owing to the high wind prevailing at the time, this material was carried mainly towards the east and spread over an area of country some 6000 square miles in extent. Near the mountain itself the eruption brought complete devastation. The thickness of ejected material was naturally greatest in the vicinity of the fissure, being on Tarawera Mountain upwards of twenty feet, and thinning laterally.

The general character of the topographical outline of Tarawera Mountain seems to have altered comparatively little since the eruption, though there is a marked difference in the photographs taken before and after that event. Prior to the eruption, the height of Ruawahia, the central and highest peak of the mountain, was 3606 feet, while to-day it is 3770 feet. The slopes of the mountain, though grooved by numerous small ravines and furrows, are in general extremely smooth, though moderately steep. The south-west slope is deeply cleft by

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a great chasm, representing that portion of the rift before mentioned between Lake Rotomahana and the summit of Tarawera. On the mountain the great rift is not continuous, but is broken by wall-like partitions into an irregular line of long, somewhat funnel-shaped craters. Owing to the collapse of the walls the deepest of these craters is now said to be about 500 feet shallower than it was immediately after the eruption. The sides of the craters display graphically the geology of the volcano, the lower portions being composed either of light-coloured rhyolitic lavas or breccias, and the upper portion of darker tuffs—the augite-andesites of the last eruption. In places steam issues from the walls, in bizarre contrast to the reds and purples of the upper rocks and more sombre light and dark greys of the lower lavas. Very little vegetation as yet relieves the dreary slopes, though here and there some quick-growing shrubs are struggling to extend their roots in a loosely consolidated and incoherent soil. Soon it will be difficult to realise that there occurred at such a recent day so disastrous an eruption as that of 1886, but we shall be ever wondering, while pondering over the devastation which it wrought, when another will take place?

In clear weather the traveller from Auckland to Wellington over the North Island Main Trunk Line, gets a good view of the western

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and south-western slopes of Mount Ngauruhoe, Mount Tongariro, and Mount Ruapehu, as the train, winding its way through the forest, emerges from time to time on the tussock patches which mantle the border between the bush-covered Wanganui Coastal Plain and the open country surrounding the base of the three volcanoes.

Mount Ruapehu, rising to a height of 9175 feet, forms the highest peak in the North Island. It is not, however, a very beautiful mountain, its apparent height being dwarfed from almost every viewpoint owing to the relatively great altitude of the volcanic plateau from which it rises. Though practically a solitary mountain its base is connected by a low range with that of Ngauruhoe, 7515 feet high, lying a few miles to the northward.

Ngauruhoe is a mountain of such great symmetrical beauty that height is not necessary to give it an imposing appearance. Ruapehu, on the other hand, looks scarcely more than a rocky ridge without any very well-defined crests, and with long gradual slopes interrupted at intervals by rugged pinnacles. The crest of Ngauruhoe is occupied by a spacious crater, within which are two subsidiary craters, one being larger and more active than the other. Marshall,¹ who, through many ascents of the

¹ *Geography of New Zealand*, by Professor Patrick Marshall, pp. 15, 181, 224.

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mountain, probably knows its peculiarities better than any one else, stated some little time ago that the character of the crater had undergone a considerable change of late years.

The summit of Ruapehu seems to have been truncated by some former explosion, and thus a crater quite two miles in width has been produced. The basin thus formed is now occupied by an ice-field surrounded by jagged ridges and abrupt palisades. These features, owing to the alternate sombreness and brilliancy of their colouring and the ruggedness of their topography, stand in marked contrast to the smooth white ice below. Of the peaks surrounding the crater, the north peak and the south-east peak are the most conspicuous. The former is a portion of the rim of the old crater, while the latter is a new parasitic cone. Near the south side of the ice-field is a subsidiary crater occupied by a remarkable lake some two hundred yards in diameter. The lake is surrounded by cliffs of ice from which great chunks break from time to time and are melted in the warm water below. The water is of a dirty greenish-grey colour, and is said to be always hot, though steam was not rising from it at the time of my visit. From the ice-field a number of small but well-developed cliff and valley glaciers, with numerous ice-falls, descend



Photo, N.Z. Tourist Dept

THE STEAMING WATER OF LAKE ROTOMAHANA.



Photo, N.Z. Tourist Dept

THE SETTLEMENT OF TOKAANU.

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a few miles down the mountain-slopes, and give rise to the large number of streams flowing from the mountain. On the slopes of the mountain between the glaciers, lava, both solid and vesicular, is displayed in a great variety of curious forms.

The name Tongariro is sometimes applied to the whole group of volcanic mountains lying immediately north of Ngauruhoe, and very closely connected with that volcano, but it is probably more correctly given to the mountain of greatest altitude in the group, some 6458 feet high. Not far to the north-eastward of Tongariro, the country descends in a series of low volcanic hills to the spacious basin of Lake Taupo.

Eastward and southward of the three volcanoes, tussock-covered plains lead to the forest-clad Kaimanawa Mountains, some eight or ten miles distant.

In September 1907 I made my first visit to Ngauruhoe and Ruapehu, being accompanied on this occasion by Jack Clarke. As we passed through the quaint Maori settlement of Tokaanu on our way to the volcanoes, the old natives were lugubrious in their forebodings as to what would befall us if we attempted to climb the mountain at that time of the year. They told us it would be snow to our waists from the base

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to the summit, that the cold would be terrific, and that storms of unusual fury would arise suddenly and rage indefinitely. We had to learn later, unfortunately for us, how much truth there was in what the Maoris said.

We made our headquarters in the shelter-hut situated in a clump of beech trees some four or five miles eastward of Ruapehu and Ngauruhoe. Both mountains were entirely covered with snow, which stretched on to the plains even beyond the hut. Hardly had we arrived when a snowstorm started which for three days hid the mountains from view and made travel far from our base impossible. Fortunately the fifth day—the last available to us on this occasion—was fine and an opportunity came to try our luck on Ngauruhoe. The mountain which, as I learned from a later trip, was merely a tedious trudge in summer, was a very different task now, and gave us many moments of respectful pondering over the warnings of the old Maoris of Tokaanu. We were on the march long before daylight, but so soft and deep was the snow that it was nearly noon before we reached the actual base of the mountain, and started from the southern side the ascent of the last two thousand feet of the cone. Here the snow was hard and frozen. Every footstep had to be cut up the steep slope of 40 degrees, giving a pleasing if more dangerous

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variation from the wearisome snow-ploughing we had just been experiencing. Clarke, much more expert than I, naturally took the lead, but the ice work was so difficult and unceasing that our advance was slow. About half-way up a tiny rock *arête*, projecting from the glare slope, gave us a moment of respite and a chance to view in safety the magnificent winter landscape of snow-covered peak, slope, and plain to the westward, and beyond the great dark forest, above which the distant white cone of Egmont showed plainly in a brilliant sky. Late in the afternoon as we drew near the summit, a strong north wind arose which from time to time shrouded the mountain in fog. This icy blast cut into our faces and numbed our bodies. Meanwhile heavy sulphur-laden steam-clouds from the crater were wafted over us, adding to the fog and covering us with rime, which froze to our clothes. At last, within a few hundred feet of the top, the air became so thick and cold that we reluctantly decided our wiser course was retreat. The descent was scarcely less difficult than the ascent, and every footstep had to be taken with the greatest caution owing to the frozen state of the surface of the snow slope. It was dark by the time we reached the base of the cone, and late in the evening when, dead tired, we were safely within the shelter-hut.

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In the two years following this somewhat unsuccessful ascent of Ngauruhoe, several short stays were made in the vicinity of the volcanoes in order to study the progress of events during the minor volcanic disturbances reported on each occasion. The weather, however, during my several visits was hopeless for climbing, and it was not until March 1910 that I was able, while carrying out explorations in the vicinity, to take advantage of suitable conditions. Even on this occasion the weather once more nearly tricked us. It was radiantly fine when MacKenzie, a fine young specimen of New Zealand manhood, and I left Wainarino Station, on the North Island Main Trunk Line, but before we reached our camp a mist had enveloped the slopes of Ruapehu, and light clouds floated gently over the crest of Ngauruhoe. It began to look as if there was an evil genius present who was determined to prevent my ascent of the mountains.

We pitched our camp in a small clump of beeches growing high up one of the numerous valleys descending from the north-western slopes of Ruapehu—a headwater stream of the Rangitaiki River. The following morning a light fog covered the plains, which thickened as the day advanced. This did not deter us, however, from riding gropingly to the base of Ngauruhoe,



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in which direction the weather was clearest. Here we tethered our horses and in about two hours gained the summit. In summer, when there is no snow, the slope is almost entirely covered with loose scoria, which makes very tedious scrambling. The climber advances a few feet, only to slide back with each step about half as far as he has gone forward. We climbed round the edge of the crater, but the fog persistently clung to the mountain, hiding a view of the crater and adding to the mystery of the strange, ominous sounds heard from time to time in the abyss beneath us and of the pungent sulphurous odours issuing almost constantly from a subterranean source. The weather brightened somewhat as we ascended the mountain, and when we reached our camp the sun was setting in an almost clear sky, giving hopes of a really fine day for the morrow.

However, we were again to be disappointed. The next day the fog was so dense that it was with some trepidation we left the vicinity of our camp and made our way slowly along the slope leading towards the base of Ruapehu. When we reached the point where farther travel with our horses became impossible, we tethered them to graze in a small but luxuriant pasture, and proceeded on foot through a rocky gorge where a turbulent stream of crystal water gurgled

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among huge boulders. The thick fog gave us no chance to gauge the correctness of our course and we scrambled on, only knowing that we were mounting and in the general direction of the mountain crest. Realising that farther advance under such conditions was precarious and useless, we were on the point of beating a retreat when the fog quite suddenly lifted, showing dimly for a moment or two the rugged palisades of the north-western face of the mountain above us. This brief glimpse encouraged us to go on, and soon we were in sunshine. We had emerged above the fog, which rolled like the waves of a great ocean below us, sweeping up the valleys and licking the slopes of the mountains. Above, from a cloudless sky, the sun shone brightly on the numerous crags of a hundred fantastic forms, and as many shades of brown, red, and purple, which bristled round the northern and western edge of the great crater ahead.

In the clear weather our ascent was easy. It was a long drag of two or three miles over a gradual slope of loose scoria before the last steeper pitches of varied lava *arête* and scoria scree were attained. Here we had a climb of about a mile, stiff and tiring, but devoid of difficulty even for the least experienced of climbers. We reached the north

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peak of the mountain about three hours and a half after we had left our horses and an easy five hours' climb from our camp. While we ate our lunch on the north peak, there was ample opportunity to gaze on the splendid landscape displayed before us. Though the fog still hung thickly on the northern and western slopes of the mountain, on the eastern side none was to be seen, and a fine view of adjacent volcanic slope and glacier and of distant forest-covered mountain was open in that direction, while beneath us on the south lay the spacious ice-filled basin of the great crater of Ruapehu. Somewhat rested and restored after our meal, we climbed round the northern rim of the crater, and from a point where it was lowest scrambled down to the ice below. The climb up the mountain had been roasting hot, but the walk over the ice seemed even more scorching, so strongly did the sun beat upon the shimmering surface.

A little after three we started the descent. We romped down rapidly for the first mile or so, till we got within the fog, which had by this time mounted higher up the mountain than in the morning. Then we got into difficulties, lost track of our footprints, and were unable to find the creek in the valley of which we had left our horses. We thought we had

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taken ample precaution in the morning to fix upon beacons by which to retrace our steps, but we were mistaken ; as every mountain climber knows, a thick fog makes even familiar objects look strange and uncanny. At last, however, when we had quite made up our minds to the prospect of a chilly, hungry night on the mountain side, we stumbled by chance on a guiding landmark and soon were riding towards a comfortable camp.

Several times during my stay in New Zealand eruptions of ashes took place from both Ruapehu and Ngauruhoe, but there have been no lava flows from either mountain within recent years. An eruption from Ngauruhoe is said¹ to have taken place in 1869, when a flow of lava, accompanied by showers of scoria, issued from the crater. A remarkable feature of this eruption was the loud underground detonations, which continued for over three months, being clearly audible, according to report, for a distance of one hundred and twenty miles. Since that year the mountain has been in a state of more or less continuous solfataric activity, and from time to time violent explosions, which spread ashes over the cone of the mountain and even on to the surrounding plain, take place.

Within the memory of Europeans there has

¹ See *Geology of New Zealand*, by Professor James Park, p. 176.

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been no outpouring of lava from Ruapehu, though many of the flows on its slopes look as if they had been deposited but yesterday. Until a year before the Tarawera eruption no volcanic activity of any sort had ever been observed at Ruapehu, either by natives or Europeans. The mountain was looked upon as extinct. Even in January of 1886, some six months before the Tarawera eruption took place, what is now the crater-lake was occupied by a sheet of ice.¹ Since the Tarawera eruption there have been occasional periods of activity, mostly feeble and hydrothermal, but on one or two occasions between 1906 and 1911 more violent eruptions took place. The centre of activity was the lake-filled subsidiary crater, and from here mud and even boulders were scattered over the surrounding ice.

More than once I was induced to make a speedy trip towards the volcanoes as the result of the appearance in the Wellington papers of a paragraph, telegraphed from Waiouru, a small settlement near the mountains, to the effect that one or other of the big peaks was in violent eruption. In time I learned that this was but a modern method pursued by the proprietor of a hotel in the little town to bring the custom which he thought the place

¹ See *Geology of New Zealand*, by Professor James Park.

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deserved. These splendid volcanoes, however, need no such allurements. They are interesting alike to the volcanologist, the alpine climber, and to the mere traveller who seeks to wander into parts as yet but little known.

CHAPTER V

THROUGH THE UREWERA COUNTRY

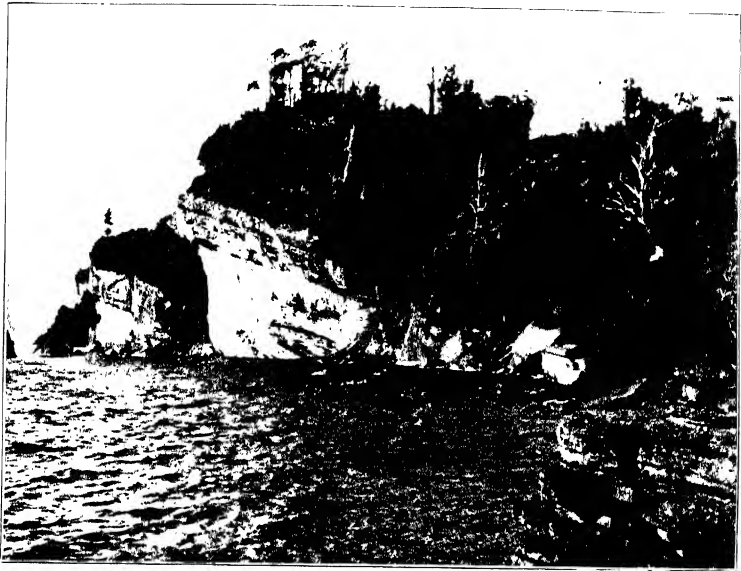
FEW travellers who reach New Zealand shores can fail to be interested in the Maoris—that brave race which, until less than a century ago, held the country entirely in its hands. With the passing of the old fighting days, when war waged almost unceasingly between the various tribes, the Maoris, like all aboriginal races, have degenerated, but this degeneration is less marked in their case than is so with most other primitive peoples, and is apparent mainly in a deteriorated physique. In New Zealand the natives are much respected, many hold responsible positions in the government of their country ; many are successful professional men, many are farmers, run-holders, and the like. However, work of any kind for long periods—manual, intellectual, or otherwise—is not usually the Maori *métier*. He likes to toil almost unceasingly for a few weeks, and then loaf for as many months. One sees him at his worst around the tourist resorts

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of the Hot Lakes District, where he easily beguiles the visitor, and is as readily spoiled in turn. One must look for him at his best—so it seemed to me—in his last stronghold—the Urewera country.

The Urewera country occupies the heart of the eastern peninsula of the North Island. Its somewhat indefinite confines may in a very general way be said to extend eastward from Galatea to the road joining Motu with Opotiki, and northward from the wonderful lake of Waikare Moana almost to Whakatane, or altogether about sixty miles from east to west and ninety miles from north to south. Until recently the Maoris raised strenuous objections to any attempt at European settlement within the Urewera, and as their rights to the district had never been relinquished, the Government upheld them as far as possible in this attitude. However, it has been difficult to keep back the prospectors, who hoped to find in this unexplored section of New Zealand a new Thames or Waihi goldfield, or to discourage the pastoralists, who longed to see their flocks fattening in the fertile valleys of the forbidden land.

Nearing the Urewera country from the direction of Rotorua, one is impressed with an abrupt change in the topography along its eastern boundary—a change sufficient to enable



Photo, N. Z. Tourist Dept.

SHIP ROCK, LAKE WAIKARE MOANA.



Photo, N. Z. Tourist Dept.

EARLY EVENING ON LAKE WAIKARE MOANA.

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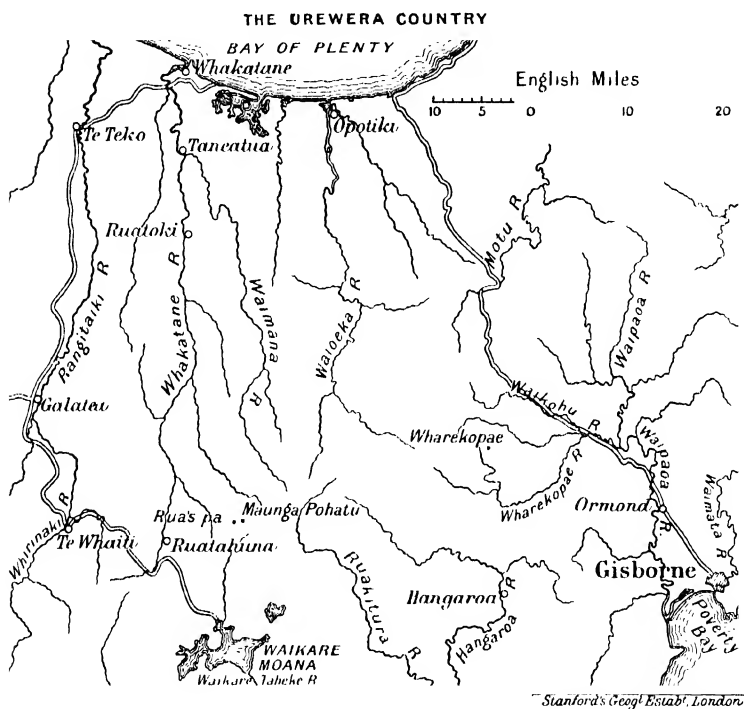
the Urewera *natives* to maintain to some extent an independent existence since the Maori war.¹ A pronounced fault-line runs nearly north and south close to Galatea. The land to the westward has been depressed compared with that on the eastward, and thus has resulted the marked physiographic distinction between the densely forested hilly Urewera country and the treeless tufa-strewn plains of Kaingaroa.

The Urewera country itself shows little physiographical variety. The altitudes are not great, seldom exceeding 4000 feet above sea-level. The local relief is, however, relatively important owing to the deep dissection of the country by numerous streams, mainly tributaries of the Whakatane flowing northward and of the Wairoa flowing southward. The valley slopes, generally steep but of uniform grade, are remarkably free from solid rocks, which for the most part appear only as rugged escarpments along the higher hills in the heart of the country. Towards the south of the

¹ Strife with the Maoris had its root in the sales of land to the Europeans. The Maoris were unable and unwilling to develop more than their own gardens and fields, and readily sold large tracts of what they regarded (justly as to their own purposes) as waste land. When they saw the improvements the Europeans effected, and realised the potential value of the country, they increased their demands and repudiated sales. A policy of consideration and compromise only made them aggressive and grasping, and trouble naturally followed, lasting from 1843 to 1862.

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Urewera country lies Lake Waikare Moana, occupying a basin of structural depression. The rugged cliffs which surround its shores, the numerous bays and islets, the many



entering waterfalls, form a wonderful foreground to the wild mountain scenery which borders the lake on every side. Along the principal streams in the Urewera country are narrow flood-plains, along which in places stretch extensive terraces. On these flood-plains



Photo N. J. L. L. L. L.

THE TANGLED VEGETATION OF THE URIWERA COUNTRY.

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and terraces are situated the chief clearings of the Maoris for their villages and their maize and *kumara* crops. Nearly everywhere else is a virgin bush of a luxuriance and splendour that can scarcely be realised unless one has travelled through it. Giant rimus, totaras, and kahikateas rise on every side, and among them are scattered nikau palms, cabbage trees, and tree ferns in a profusion not found over such an extensive area elsewhere in New Zealand. At times one may resent the intrusion on the narrow paths which traverse the forest labyrinth of the long ropes of the gei-gei, the thorny branches of the bush-lawyer, or the matted meshes of the mange-mange. From the safe distance of the open portions of the trails, however, these lend additional beauty to the wonders of the forest.

It was a scorching day, late in February, when Jack Clarke and I left Waiotapu for Galatea to make a brief exploration in the Urewera country. The report of the discovery of auriferous quartz near the headwaters of the Whakatane had been the means of our being able to obtain permission to see a section of New Zealand which I had long wished to explore. The drive from Waiotapu to Galatea was monotonous to dreariness, the dull level plain stretching to the horizon in every direction save to the eastward, where the outlines of the

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dark hills of the Urewera gradually became more distinct as we approached. Even these were at times obscured by the fine tufa dust which rose in clouds, sifting into every crevice of our baggage and filling the perspiring pores of our bodies. I remember being at first much entertained and later irritated at a group of gay Maori damsels whom we chanced upon, resting themselves and their scraggy ponies by a stream which gurgled among some manuka scrub. We made bold to air our slight knowledge of the Maori language, which so much encouraged the girls that they mounted and came after us. Question after question was hurled at us, as to whence we had come, where we were going, and what supplies had we with us for our journey. These, as our driver wearied of answering, changed to such scurrility and vituperation that he decided to whip up his horses and rid us of the embarrassing company. Our friends' ponies were equally smart—notwithstanding their discreditable appearance—and kept their riders for a mile or more at our heels, completely hidden by the dust. Even this did not prevent our hearing the unceasing volley of vile abuse which the dusky ones flung at us from beneath the shroud. Suddenly it stopped, and we were congratulating ourselves at having rid ourselves of our tormentors, when a bend in the

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road showed them in front of us, drawn up in imposing array across the roadway. They had taken a short cut and were now in the position of vantage. They waited until we were almost on top of them, when with shrieks of delight they broke into a gallop, raising such quantities of dust that we could scarcely see one another. Nor were we to be rid of this persecution—for the girls modified their pace to suit ours—until we reached the settlement of Galatea three or four miles distant, where we found them seated on the grass in front of the village store, smoking cigarettes and chattering with glee over their recent escapade. “*Kapai* the dust, *pakeha*?” (“How do you like the dust, white men?”) one called out, rolling her eyes maliciously and shaking her clothes at us to give us the advantage of more dust. This, our first experience of the Urewera natives, showed us two points in their character of which we were later to learn much more—their large capacity for fun and their ample ability to take care of themselves.

On our drive from Waioapu we had heard much of the strange behaviour of Rua the prophet, and we gleaned even more of his doings at the hospitable little station-house beyond Galatea, where we passed the night. Rua, so we learned, hated the white people, and had gathered from far and wide such of his people as

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would accept his cult at his great new *pa* of Maunga Pohatu, near the mountain of the same name, in the very heart of the Urewera, where he attended to their spiritual and temporal needs. Not all the Urewera people had accepted Rua's affirmation that he was the returned Messiah, or that Te Kooti,¹ the remarkable Maori chief of the late 'sixties, was in reality the John the Baptist who had years before proclaimed this second coming. However, even if a few of the natives of the Urewera country had held aloof, there had been important acquisitions from beyond its confines. Rich Maoris from Opotiki and Gisborne had sold their lands and placed the treasure in the sacred hands of the prophet ; others had drawn their savings from the chartered banks and put them in Rua's bank, from which they were to receive—out of principal, be it known, alas !—an annual return of 20 per cent. Altogether the great man had gathered some 400 or 500 followers around him, over whom he exercised great influence, making them work hard in cultivating quite a large tract of country for the common interest, prohibiting them from smoking or touching alcohol, and

¹ Te Kooti, once an ally of the British, was suspected of communicating with the enemy and was transported to the Chatham Islands. In July 1868 he headed a mutiny and escaped to Poverty Bay. Here he started a troublesome campaign against us which lasted several years.

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making them follow with pharisaical regularity numerous religious observances. Nothing is so abhorrent to the Maori character as continuous regular work, and for this reason there had been occasional defections from the ranks of the faithful. However, the backsliders were few as compared with those who remained loyal to their chief, working without ceasing, so an ardent convert told us, to carve a new Jerusalem out of a primæval forest. There was naturally some trepidation among the scattered white settlers along the borders of the Urewera in regard to the banding together of the natives, lest the murderous raids of Te Kooti be repeated, but the feeling at Galatea was that the movement was peaceful and religious rather than aggressive.

Leaving Galatea we entered the Urewera, and for about twelve miles drove through hilly country, up the narrow valley of the Te Whaiti, to the settlement of the same name. Here a *pakeha* Maori, trading among the natives, and apparently quite a force among them, endeavoured to induce us to forego our onward journey. "It is useless," so he said, "to attempt to go by way of Rua's *pa* at Maunga Pohatu, because he will surely prevent your passing through, especially if he knows you are looking for gold." However, I had great faith in the persuasive

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powers of our clever Maori guide and interpreter, Hugh Macpherson, whom we were expecting shortly to meet on his way through from the Gisborne side of the Urewera, and consequently was not alarmed at the dire forebodings of the trader. At any rate, our minds could not long linger on gloomy expectations in such a lovely country as we entered beyond Te Whaiti. The road which we followed wound gradually upward along the valley of a tiny stream, rippling below giant rimus and kahikateas. Kakas chattered among the trees, pigeons flitted from branch to branch, tuis sang sweetly on high, wekas, shrieking at our approach, scampered nimbly across the road. Here and there we came to tiny Maori clearings, where groups of picturesque natives lounged round tiny palm-thatched cottages, chewing great ears of maize, which grew round about in plenty, yellowing in the hot February sun.

Just beyond the crossing of the Whakatane the carriage road ended. From here onward for many miles we were to follow nothing but narrow bush-tracks, and we were wondering how we should manage for the rest of the way without a guide if Macpherson did not appear (for we were now well within the Maori country), when we were delighted to espy him ahead of us. He had just arrived, and was resting with some



Photo, N.Z. Tourist Dept

MAORI WHARES.



Photo, N.Z. Tourist Dept

A MAORI STOREHOUSE.

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Maoris, eating quantities of luscious blue plums, abundant in the neighbourhood, and almost the sole evidence of an apparently spiritually fruitless missionary habitation of nearly a half-century previous. Macpherson had a hard tale to tell of the difficulties of the journey ahead of us beyond Rua's stronghold, where the absence of any formed trail had given him great difficulty with the horses which he had brought along to take through our scanty supplies. One of the three had in fact got staked in the eye on this portion of the journey, and had been left behind to recuperate near Maunga Pohatu, and another animal had been brought forward in its stead. Whatever fear we might have had in regard to our reception by Rua was, however, quickly dispelled by Macpherson, who spoke in glowing terms of the cordiality of his reception and of the wonderful enthusiasm for work with which the prophet had filled his followers.

Though the day was still young Macpherson advised camping near the grass by the Whakatane to give the horses a good feed and a chance for a rest, and to discuss our plans for the onward journey. This early halt gave me at the same time an opportunity to look at the supposed gold-bearing rocks, of which we had heard much at Te Whaiti. The Maoris were afraid that these rocks would serve as a pretext

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for the occupation of their country by whites, but they need have had no anxiety on this score.

Soon after we had pitched our camp on the edge of the Whakatane we were joined by Hikurangi, an old white-haired Maori chief, much respected by his people. His religious leanings were somewhat uncertain. He was inclined at times to favour Rua, because, so he said, he made the Maoris work, a good occupation for them as they could no longer carry on the more honourable game of war, which he had known in his youth. On the other hand he deplored Rua's numerous marital relationships, which he felt sure would lead the great man into complications beyond number. Consequently, he refused to wear his hair long, which was the badge of all who unwaveringly accepted the prophet's teaching. He was a dear, trusting old man, and soon we were on good terms with each other. During the long evening over a healthy meal he had much to tell us, through Macpherson's excellent interpretation, of his country and his people, and more to ask us of the ways of the whites in the great world of which he knew so little.

As Macpherson and Hikurangi talked, we were able to glean now and then some information about the course we were to pursue onward into the unknown. From the Whakatane the

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route eastward for about fifteen miles was, so Hikurangi said, in places poorly defined, and in the vicinity of the large native settlement of Ruatahuna a number of branching trails were likely to beguile the stranger away from his course. Beyond Ruatahuna, a track, for the most part well formed and easily followed, led to the lake of Waikare Moana, and thence eastward towards Gisborne. From this well-formed track we were to deviate about ten miles east of Ruatahuna, and thence follow an old stock-track to Rua's *pa* at Maunga Pohatu. A mile or two beyond the *pa*, this stock-track ceased, but began again about fifteen miles or so nearer Gisborne, and continued thence to Wharekopae, the most outlying settlement of the prosperous farming community of Poverty Bay. Between the two extremities of the stock track the Maori trail, which had given Macpherson such trouble, wound through a great forest, leading up and down over the hills, and across stretches of plateau lying around the base of the crest of Maunga Pohatu. These were to be the salient features of our route, but every phase of the prospective journey Macpherson and the old Maori discussed at length before Hikurangi departed for the night exclaiming that he himself would accompany us onward and guide us by the shortest path to the point where we

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were to join the track leading to Waikare Moana. Accordingly, at sunrise next morning he appeared and, refusing the assistance of a horse, walked proudly and sedately along at the head of our small cavalcade—a fine old representative of the long line of warrior chiefs from which he had sprung.

As we neared Ruatahuna a tremendous shouting behind us caused us to pause with some alarm, and we were soon joined by a small band of Maoris—both men and women—whose long hair proclaimed them to be Ruaites. However, when they saw that we were strangers they readily forgot the rigour of their creed and immediately begged for tobacco, which forbidden pleasure both sexes were speedily enjoying. We found them jolly company as far as Ruatahuna, which soon appeared in view lying upon an elevated terrace on the east bank of the middle branch of the Whakatane. Reaching the *pa*, we were warmly welcomed by young and old, and while the women made ready a feast in our honour, the men escorted us to the *wharepune*, or common meeting-house. The grotesque Maori carvings on the walls filled us with interest, and it was a joy to note how intently the younger men and boys listened to the tale which Hikurangi graphically told of the brave deeds of the early chiefs, whom some of the

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carved figures represented, and who in the dim past had come from Hawaiki—their ancestral home—to New Zealand's shores.

When we got back to the eating-house we found our meal laid out for us. As it consisted entirely of boiled potatoes and raw sour blue plums, we added bread and meat to the feast, much to the Maoris' delight. As we ate, sitting upon the floor, our Maori hosts, some of whom were followers of Rua and others not, regaled us with tales of the prophet and of his household, to which, like Solomon of old, he was constantly adding by marrying more wives. The greatest merriment prevailed, especially when a buxom young Maori widow present offered herself in marriage to one of our party, solemnly remarking that the marriage need not be delayed, as her house was empty and in order, and her broad lands ample for her and her bridegroom to live in peace and plenty. Hikurangi himself said he thought the marriage would have a fine influence, and would serve to unite the Maoris within the Urewera with the whites beyond its borders. The lady's attentions at this time became so embarrassing that we thought it was high time to depart, but we could not get away without a portion of the company who joined old Hikurangi in starting to guide us safely through a veritable maze of by-ways to the graded track

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leading to Lake Waikare Moana. Before we had arrived at this point our new companions had joined some Ruaites engaged on the banks of a small stream in the pleasant occupation of singeing some young porkers intended for the prophet's table; but the old chief continued with us till he had brought us safely to the track. Here he was loud in his regrets at leaving us, as we were in saying good-bye to so instructive, so dignified, and so cheery a guide. Ten minutes or so after we had left him at a bend in the track, we caught a glimpse of the fine old native still standing and watching the way we had gone up the forest path.

That night we camped on the stock-track, not far beyond the point where it leaves the Waikare Moana track, the main highway. Far into the night trains of ponies kept passing, laden with provisions for the *pa* at Maunga Pohatu, which showed that the prophet looked after the carnal as well as the spiritual wants of his followers.

The stock-track leading up and down over the hills, without any attempt at grade, and in many places overgrown and choked with fallen timber, was not easy following even in daylight, and we marvelled next day, as we pursued our wearisome course, how even the nimble Maori ponies had managed to carry their heavy loads

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along such a trail in the dark of the night before.

Though we got a daylight start, it was ten o'clock when from a high point on the track we came suddenly in sight of the stronghold of which we had heard so much for the two or three days before. Rua had chosen a spot of surpassing beauty for his headquarters. It lay on a high and extensive terrace, situated at the base of densely forested slopes rising to the well-defined escarpment marking the crest of Maunga Pohatu. Even from a distance it was evident that the well-made clearings surrounding the *pa* were very recent, but those on the lower terraces, and on the broad flood-plain which bordered the eastern fork of the Whakatane, gave every evidence of long cultivation. It was here in fact that British soldiers camped during the Maori war, and the place had been a missionary station even earlier.¹ Fields of ripening maize, orchards of apple and plum, green patches of potatoes, and herds of cattle, sheep, and horses grazing in the fertile valley, gave evidence of a peace and plenty rarely seen in any Maori community. A few *whares* lay scattered near the river and on the lower

¹ This is said to be the site of the mission station of the Rev. James Preece, who laboured in the Urewera country sometime about 1840 or a few years later. His headquarters in subsequent years were at Te Whaiti.

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terraces, but our attention soon wandered from these humble older dwellings to the imposing habitations of the prophet, which rose, fresh and clean, above the new clearing.

It seemed scarcely credible that all the work which we saw before us had been done in a few months' time. To any one who knows the difficulties of clearing the New Zealand forest, the tremendous task of removing the great stumps of the rata or the rimu, even after the forest has been removed, will be apparent. As a rule in New Zealand, when the bush has been cut and burned, the stumps are left in a new clearing for years to rot, but in this respect Rua had been unlike the average agriculturist—the cleared ground was almost entirely free from stumps, and there was no unsightly, untidy area between clearing and forest. The newly turned ground began where the great virgin forest ceased, giving a particularly pleasing effect.

The influence of Rua over the energies of his followers seemed decidedly for good, and evidence of industry was visible on every side. A well-formed graded track led from the river up over the lower terraces, past the main entrance of the enclosed part of the stronghold, among the buildings outside, and beyond to join the stock-track through the bush. As we

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neared the *pa*, groups of Maoris met us, some of whom seemed rather disinclined to let us proceed. However, most of them were friendly, and welcomed us cheerily, laughing, chatting, and even singing for our benefit. Nearly every one was spotlessly attired in sombre hues. We missed the picturesque air of the bright-coloured garments usually worn by the Maoris on ordinary occasions, which the long hair generally adopted by the prophet's followers failed to relieve.

Just before reaching the gates, the heads of some Maori youths behind a log, peering along what looked like the barrels of rifles, gave me some uneasiness. However, these too were peacefully inclined, as the supposed rifles turned out to be only long poles, and we passed on to the gates without hindrance, delighting meanwhile in the beauty of the dusky, scantily attired boys and girls with joyous, laughing, mischievous faces encircled by mats of long black hair, who played about outside the enclosure.

There were two main gates in the low surrounding stockade of split timber, one facing to the east, the other to the north. A main roadway led south from the north gate, on either side of which, set closely together, were neat, well-built *whares* for sleeping purposes. These were constructed of palings and shingles only, and were about seventy or eighty in number.

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At the south end of the roadway stood Rua's residence—a two-story, double-gabled building, with a corrugated iron roof. Near by were a number of other buildings, the bank, store, etc.—larger than the sleeping *whares* ; but by far the largest and most interesting building was the temple, standing near the north-west corner. It was a round building about 75 feet in diameter and 30 feet in height, surmounted by a cupola, from which an elevated gangway led to a small rostrum situated immediately above the stockade. It was from this rostrum that Rua was said to deliver his messages to the faithful, and to it none were admitted save the prophet and his twelve apostles. The walls of the temple were gaily decorated over a background of yellow, by mystic signs in pale blue and white.

Outside of the enclosure on the hillside were a large number of small houses reserved for eating ; no food of any kind could be partaken inside the enclosure, and no one might enter without washing his hands in the trough provided for the purpose at the gate. A copious supply of pure water was brought to the settlement in well-constructed ditches, leading from a small stream flowing off the slopes of Maunga Pohatu. Near the eating-houses we found a gay company enjoying themselves after the religious exercises of the morning, for it was

THROUGH THE UREWERA COUNTRY

Saturday, which the Rua cult ordered as a day of rest from labour. We waited with the Maoris for a short while, hoping that Rua himself would appear, but he kept concealed, and we felt disinclined to trust ourselves within the enclosure.

A short distance beyond Maunga Pohatu, the stock track, which we had followed since leaving the Waikare Moana track, ended, and a fresh trail began. We thought the three or four miles which we were able to make along that trail that afternoon were difficult, but they were easy compared with the twelve miles which were to be overcome on the following memorable day.

It was just after sunrise on a dark, gloomy, rainy morning, when amid the shrieking wekas, we left our comfortable little camp beneath a high spreading rata, and it was nearly sunset when under clearer skies we emerged from the forest labyrinth on to the well-cleared stock track leading to Wharekopae. Men and horses alike were dead tired, and, as we all exclaimed, "no wonder,"—the twelve miles were almost one continual mud-hole, and to make matters worse, through the mud, both above and below the surface, were everywhere roots of trees, great and small, among which the horses' legs were continually being caught.

All along the trail lay the carcasses of animals

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who from broken limbs or other causes had been abandoned—a grim reminder of what might happen to our poor animals. The horses of the pilgrims to Rua's pah had paid dearly for their masters' zeal. We passed through the country at the driest time of the year, marvelling how travel had been possible for horses along this slough during the rains of winter. Of course, riding was everywhere unthinkable—at least for us—though we met at one of the worst parts of the trail a fat old Maori, whose agile little pony carried his almost completely enveloping master nimbly among the pitfalls. The difficulty was to get our horses through at all with their light loads of fifty or sixty pounds apiece. The bags served in places to buoy the animals up when likely to be bogged in the deeper holes, and formed at times a cushion against which to extricate themselves from among the spreading roots. I remember with horror how we whacked the poor brutes and dragged at them, when after squirming in the liquid mire they lay exhausted, and seemed about to join their comrades whose bones whitened along that dreadful route. Often when we rescued them from such quagmires they would lie down with terrible equine groans on more solid ground ; then we had to goad them to rise and push onward. In places we had to abandon the trail

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for short distances and carve out a new route, but this, owing to the density of the undergrowth in this wet bush, was so laborious and lengthy a proceeding, that we were for the most part forced to keep to the travelled highway, along which had come much of the equipment utilised in building the prophet's stronghold.

Towards Wharekopae we passed two of Rua's earlier camps, but they were built on a much less ambitious design, and were evidently intended only as temporary quarters. Along the stock track from the end of the bad trail to Wharekopae, where we reached the regular roads, the travelling was on the whole good, and we easily made the thirty or thirty-five miles in a day. Nearing Wharekopae, an increasing number of sheep stations were to be noticed, showing the encroachment of white settlements in this direction upon the Maori country. Each succeeding year sees more and more of the native lands on the periphery of the Urewera, seldom skilfully tilled under Maori direction, being acquired, and the Maori remnant pushed farther back into the mountainous hinterland. Every lover of this fine, brave and picturesque race must hope that the day is far distant when the Maori with his *whares* and his maize-fields, and the wonderful forests of his country, will have vanished from the Urewera for ever.

CHAPTER VI

THE WILDS OF KARAMEA

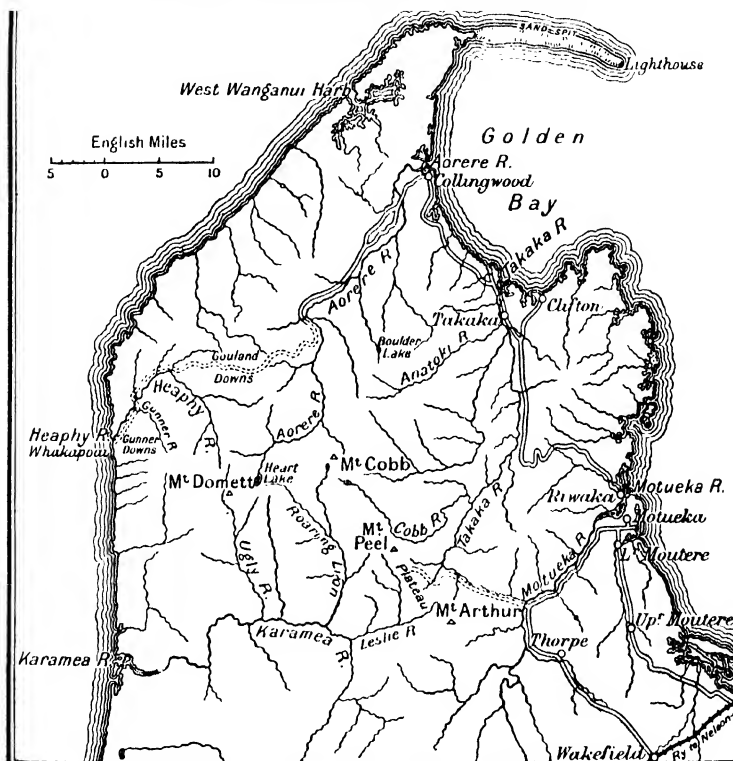
IN fine weather the traveller by sea from Wellington or Nelson to the west coast towns of Westport, Greymouth, or Hokitika, will be able, while closely skirting the rugged shore from a sturdy little Union liner, to scan a mountainous country, rising for the most part abruptly from the sea, but in places along the mouths of the principal rivers bordered by low-lying alluvial flats, on which are situated the few settlements and outlying farms of a very sparsely inhabited coast. Almost everywhere else stretches the forest, which clings to the very cliffs, beaten by the great waves of the Tasman Sea, and sweeps inland over mountain and valley as far as the eye can reach. Here and there a ridge of higher mountains or an isolated peak raises its rocky summit above the generally pervading green, or elsewhere a small patch of the tussock of some natural upland meadow shows in summer a yellow spot in the sunlight.



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In winter the higher country is white with snow, in beautiful contrast to the green forest below.

THE NORTH WESTERN PORTION OF SOUTH ISLAND.



Some forty miles inland from Greymouth and connected with it by railway is the gold-mining camp of Reefton. From the excellent coach-road joining Reefton to Westport, another, equally good, branches at Inangahua Junction,

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and follows some seventy miles or more through the wonderful gorge of the Buller, and crossing over Hope Saddle reaches the railway again at Motupiko—a few miles inland from Nelson. Few persons who have travelled along this well-made highway will forget the beauty of the mountainous country seen along the route, as it winds its way past the clear rushing waters of the river and climbs over high ridges, through which the stream has canyoned its way hundreds of feet below. For miles one jogs along through dense forests, the trees meeting overhead and closing out all view of the surrounding country, save, perhaps, at some sharp bend in the road, where one catches a fleeting glimpse of the rugged peak of Mount Arthur or Mount Owen rising higher than the rest of the country to the westward, or of the sharp, serrate crests of the Spencer and St. Arnaud Mountains to the eastward.

Here and there are tiny settlements where formerly the gravels of the Buller and its tributary streams were extensively worked for their gold, and as the coach rattles on, the driver will tell the traveller wonderful stories of greed and generosity, bravery and cowardice, about the old diggers of bygone days. Fine explorers many of them were, wandering for months with their swags on their backs along



FIG. UPPER AORERE RIVER.



THE MIDDLE COURSE OF THE AORERE RIVER.

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Alpine stream, through tangled forest and over mountain pass, panning far and wide in every valley for the yellow metal. Scarcely a stream bed in all the wild country between the Buller Road and the western seaboard, which was not tested years ago by the old-time prospectors. At times one comes across an old hatter¹ still working a bar in some remote valley, but now most of them are gone for ever. It is to these old gold searchers and to a few Government surveyors who have carried out triangulation work in these parts that we owe our scanty knowledge of the hinterland of the north-west corner of the South Island.

Almost the entire area is mountainous, and everywhere the interior is difficult of access. North of the Buller the principal streams entering the Tasman Sea are the Karamea and the Heaphy. Their headwaters interlock among a maze of rugged ridges with those of the Aorere and Takaka flowing to Golden Bay. Each of these rivers enters the sea in a broad open valley, but inland the alluvial flats soon diminish in extent, gorges become common, and towards the headwaters both the main streams and the numerous tributaries flow in narrow, sinuous valleys with frequent waterfalls and rapids. The valleys of a number of the

¹ A back-blocks prospector.

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streams widen at their sources and include small, deep lakes, occupying the cirques of glaciers, which in this part of New Zealand have long since melted and disappeared.

The coast line of these parts shows great variety. Now a long, hard sand or gravel beach fronts the ocean, bordered, perhaps, by precipices of Miocene clay or limestone ; again, a long line of cliffs of harder and older rocks rise abruptly from the deep water of the ocean. Numerous bays and inlets occur, in which ships of small size can find anchorage at high water, but which are generally bare at low tide. Conspicuous among these is the harbour of West Wanganui. Its narrow entrance, its bordering palisades of limestone, the adjoining slopes of palm and tree-fern, its background of conglomerate crag and granite peak, make it a feature of rare beauty.

In places along the shore and along the principal streams, elevated terraces of Miocene rocks appear and give evidence of an ancient plain skirting the coast line, now in great part denuded. High up among the mountains wide stretches of plateau rising to heights of 3000 and 4000 feet show the extension of this old feature far inland. In the Miocene period great stretches of New Zealand were submerged, and in the north-western corner of the South

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Island only a few of the higher peaks seem then to have risen above the far-spread waters. Later, the land rose to varying heights, and extended farther than we know it to-day. Since that time the ocean waves have cut back the soft Miocene rocks, and some of the streams have laid bare the old floor upon which these were deposited. The uniformity in height of the higher peaks, few of which now rise above 5500 feet, show that base-levelling of the land had almost been reached in that far-away time when the waters of the Miocene sea covered much of the country.

The fertile lower valleys of the Aorere, Takaka, and Karamea, which formerly swarmed with gold-diggers, are now the home of dairy farmers. The wilds of the Heaphy, less favoured by nature in the distribution of its golden treasure, were, until recently, unmolested by man and scarcely ever visited. The only track to the valley, formed years ago from the Aorere, was completely overgrown. Only in the most favourable state of wind and tide could a tiny ship cross its ever-changing bar. The wild forest-covered hills extending inland from the very shore-line were almost as unexplored as when Cook sighted them nearly a century and a half ago.

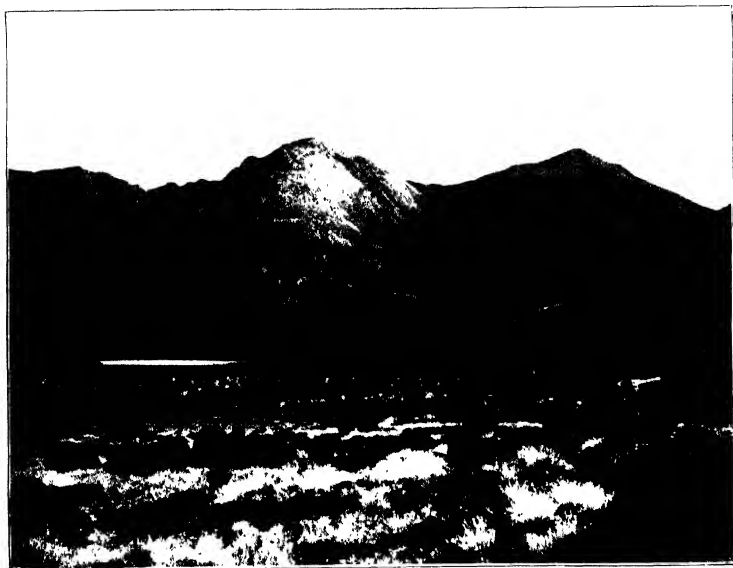
It was a lovely warm evening early in April

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1907, when with Jack Clarke and Arthur Wilson, I first saw the mouth of the Heaphy. How restful the place seemed to us after a long day's travel from Karamea—nine miles on the back of a joggy pony and the remaining twelve on "Shanks' mare," jumping from boulder to boulder along the narrow beach on which the sun beat furiously. Everything seemed to welcome us. Beneath tall nikaus, which grew close to a beach of yellow sand shelving steeply to the brown waters of the Heaphy, we found a camping-ground of royal splendour. We feasted upon Cape gooseberries, which grew in large quantities along the margin of beach and forest, and we marvelled at the beauty of the great cliffs of limestone looming dark and creeper-clad on the north bank. Before us lay the labyrinth of forest-covered mountains, among which the river lost itself in the blue haze to the eastward, while on our ears fell the unceasing roar of the waves as they pounded upon the stretch of sand beach southward. Never had I seen a place which seemed more peaceful, more meant to be left untamed, unspoiled by man, but before we had left next morning for our onward journey northward, we had chosen the spot as a headquarters camp for the survey of the country between the Aorere and the Karamea which we were then contem-



THE HINTERLAND AT THE HEAD OF THE HEAPHY RIVER.



BOULDER LAKE AT THE HEADWATERS OF ONE OF THE TRIBUTARIES OF THE AORERE.

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plating, and in a few months' time a small hut had risen in a tiny clearing among the nikaus. Many a time in the two years which followed did I leave this refuge in the wilderness with that joyous feeling of expectation with which one plunges into the unknown, to travel over mountain and plateau in the adjoining hinterland, and as often did I return to it with that calm feeling of contentment which comes to the weary and footsore after a long journey is over and he is back once more to a place which he can call home. For such the Heaphy mouth—Whakapoai, as the Maoris call it—came to mean to us, amid the trials and sorrows, the pleasures and the joys, with which the country behind it was explored.

My most memorable trip was made in February 1908, in company with Professor Marshall, Jack Clarke, and Jim Cadigan. Our object was to examine the country lying between Whakapoai and Mount Arthur, about twenty-five miles to the eastward. This region had up to that time not been explored, but the rough maps available showed that our course lay a little south of east for some twelve miles to Mount Domett, and thence almost straight easterly to Mount Arthur. We hoped by some such route as this to follow the divide between the waters of the Heaphy and Karamea on the one hand,

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and those of the Aorere and the Takaka on the other. Little did we realise how irregular that zigzag course should prove to be! We had heard stories of old diggers who had travelled from the plateau of Mount Arthur to Mount Domett in a day's journey, and as some of us had been in our wanderings close to the latter peak in a day's outing from Whakapoai it seemed probable that the whole trip could be made in three days, with ample time to look about as we went. We knew the journey would be a rough one and were anxious to reduce to a minimum the loads which had to be "swagged" on our backs. Four days' provisions we thought plenty, and one of our men was despatched to await us with a further supply on Mount Arthur. His orders were to light grass fire signals from time to time, the smoke of which we hoped would guide us, should we, among the numerous rocky ridges of the interior, have difficulty in finding Mount Arthur.

We set out on one of those dark, gloomy days which come in a spell of drought, when nature intends it should rain but when none falls. A long and tedious climb of 3000 or 4000 feet through forest and mountain scrub from Whakapoai to the plateau above began our journey. Night was drawing nigh when at last we emerged on the rolling tussock of the Gunner

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Downs. Here, beneath spreading beeches and amid great granite boulders, we found a camp ground overlooking the wooded valley of the Heaphy to the northward, and its tributary the Gunner to the eastward. Just beneath us, it seemed, spread far away to the horizon the blue stretches of the Tasman Sea. To the south-eastward it appeared but a few miles, in the bright air which followed the clearing away of the clouds, to Mount Domett. We went cheerfully to bed feeling our course onward was easy.

Next day we got an early start, and had almost crossed the Downs when about nine o'clock a dense fog rolled up from the northward and we were obliged to camp for the day. The third day of the journey was brilliantly fine, but our progress wretchedly slow. First of all we had to cross an area of limestone, which lay round the base of the ridge lying eastward of the Gunner Downs and situated between the headwaters of the Heaphy and the Ugly, a tributary of the Karamea. The limestone was deeply cut by immense chasms, often difficult to cross. These obstacles passed, our path led for many hundreds of feet up a steep slope, covered with a mountain scrub so matted and impenetrable that to advance it was necessary to roll over it—scrambling through was

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impossible. When at mid-day we did reach the open ridge top, it was only to climb down again.

Thus, up and down, we travelled till we had rounded the headwaters of the Heaphy, and just before evening crossed the ridge and looked down into the valley of the Ugly. Here a great disappointment was in store for us: we had hoped to be able to climb round the ridge at its head rather than traverse its valley, but the view which lay before us quickly dispelled any such hope. The Ugly had cut its course much farther south than the map had indicated, and a long irregular line of bold stacks and sharp *aiguilles*, guarding the *cirque* at its head, forbade the contemplation of travelling in that direction: consequently there was nothing for us but to scramble across the valley. We were, however, much too tired to undertake such efforts that night, and at the first water below the ridge—some large seepage-holes among the moss—we pitched our tent.

It was a radiant evening: as the sun set, gilding the rocky slopes, the summit of Domett, still far to the eastward, seemed but a stone's throw from us. A thousand feet or more below us the Ugly roared unceasingly amid the forest. We were so tired that night that it was long before we slept, and it seemed that every species of bird known to those parts came to serenade us.



AS THE SUN SET, GILDING THE ROCKY SHORE, THE SCUMBLE OF DONKEYS STILL FAR TO THE
EASTWARD, SEEMED PUT A STONE'S THROW FROM US.

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It was nearly noon next day before we were able to reach the ridge beyond the valley of the Ugly and look down upon Heart Lake at the head of the Aorere. Away beneath us, over a thousand feet down a slope of steep scree and matted vegetation, the basin of water shimmered like a great gem in the morning sunlight, surrounded by hills in every direction save towards the north, where the deep sinuous valley of the Aorere could be traced amid the high bordering hills. Towards the south-west a saddle among the hills could be seen to lead into a tributary valley of the Ugly, entering that stream far below where we had just crossed it. Had we been less tired by the harassing vexations of the four hours we had spent in battling our way through the dense vegetation in the valley just passed, we might have looked with greater equanimity upon the deep, wide gut to be traversed ahead of us, and tackled cheerfully the feat of the King of Spain, who, in the nursery rhyme, "Marched right down the hill and marched right up again."

Our provisions, of which it will be remembered we had brought only a four days' supply, were by this time—our fourth day out—growing low, and although we did not anticipate for one moment any difficulty in reaching Mount Arthur, it was now evident that we should not arrive as early as expected. Mount Domett, which we con-

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sidered about half-way, still frowned high above us and ahead. Accordingly, the snack which we ate by the shores of Heart Lake was diminutive, as it was clear that we must husband our now very small store for the journey still before us. Perhaps the fact that we found evidence of the visit of one of the Geological Survey staff to the lake, in the form of a survey peg marking the uppermost part of the traverse of the Aorere and dated the year before, helped to make up for our scanty meal. At any rate, we left Heart Lake much more cheerfully than we had arrived, and reached the ridge to the eastward about an hour before sunset. Here Clarke and I remained to reconnoitre, while Marshall and Cadigan pushed a short way down the slope to the north-east, to pitch camp and to boil a weka, which, fortunately for us, Cadigan had killed as we climbed the slope from Heart Lake.

Since noon the air had smelt smoky, and now was so hazy that the view in every direction was poor. Great forest fires were burning; some were in the North Island, as we afterwards learned, and the smoke was being wafted southward before a strong northerly breeze.

The ridge on which Clarke and I found ourselves descended abruptly in almost every direction: to the valley of the tributary of the Ugly, before mentioned, on the west; to a sub-tributary

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of that on the south-west ; to what we supposed to be the Roaring Lion, another tributary of the Karamea, on the south-east ; and to what we thought was the Cobb, a tributary of the Takaka, on the north-east. The ridge between the two last-named ran first of all a little north of east, then east, and then south of east. From where we sat and surveyed it through our field-glasses, it looked a series of gigantic, compound saw-teeths—each member of the series rising in a number of sharp pinnacles to a commanding apex, and descending in the same way to the saddle between it and the next member.

In the hazy light it looked an impossible task to undertake the long journey up and down that serrate, sinuous crest-line to the gradual slope far away in the distance, which we thought we recognised as the northern edge of the plateau of Mount Arthur. Just beyond the gradual slope rose the crags of a peak, which in the dim distance seemed to simulate the outline of Mount Arthur itself. It seemed to be a little too far to the south, but we thought this was explained by the possibility that in our wanderings on the Gunner Downs in the fog of a few days before we had perhaps digressed somewhat from our course. In the background, to the northward of the peak we considered to be Mount Arthur and

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of the gradual slope near by, a maze of other peaks rose to lower altitudes. The outlines of these were so hazy and looked so far away that we did not think it possible, notwithstanding the smoke, that our course lay towards them. Between the valley of the Aorere and what we considered the valley of the Cobb we traced a ridge for a mile or so running northward; obviously, so we argued, our course did not lie that way, as according to our map we had to travel in a generally easterly direction, and south of the Cobb. Consequently, as the result of much cogitating, we came to the decision that our path followed the rugged, bristling crest-line leading to the gradual slope, and the supposed Mount Arthur; and to Clarke, the trained mountain climber, the man whom no mountains daunted, fell the task of finding a route thereby. We lighted the tussock near at hand and, as the smoke curled upward in great wreaths, reddened by the sun setting over the rocky slope of Mount Domett now lying just to the west of us, Clarke cheerfully showed how the route of the morrow was in reality much easier than it seemed to me in the hazy atmosphere. We were scarcely disappointed when no answering smoke came to our signal. "It would be difficult, if not impossible, to see it," so we told each other, "in such a light."

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Before night fell we rejoined our companions at the camp, and found Cadigan pursuing another unhappy weka, which, luckily, he captured, so that we had a meal—if, indeed, a slim one—to commence our fifth day on the trail. So early were we up that we had reached the crest of the ridge long before the sun had risen, determined if possible to arrive at Mount Arthur before another day had passed.

It was a tiresome tramp up and down along that rocky top, but Clarke's opinion of it the night before had been right—it was not nearly so difficult as it had appeared, nor yet so long. There were steep edges and sharp corners to scramble round, but none sufficiently difficult to put Clarke's skill in mountain craft to any severe test. The monotonous drag of the journey fatigued our now poorly fed bodies more than its length warranted, and would have depressed us had we known the disappointment in store. Then there was the interest of the journey to keep up our spirits. On either side lay deep valleys, their densely forested bottoms dimly discernible through a haze greater than that of the previous day. Here and there beneath us, and in places above the forest-line, great *cirques* gouged from the mountain-side held lakes of wondrous clearness. Around and along the ridge rose here a mighty needle of schist or phyllite, there

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a rounded hummock of granite or quartzite. Below descended slopes of scree in places bound together by tussock bright with Alpine flowers, and elsewhere loose and moving readily with the slightest footstep. Beyond stretched the blue haze of mountains, and ever in the nearing foreground that long low slope beckoning us to what we supposed was repose and plenty.

It was afternoon when, with a fast unbroken save for water and the succulent but innutritious leaves of the aniseed, we reached the promised land. Up to this time there had been scarcely a doubt in my mind that we were on the right track, but Marshall had been dubious since we started in the morning. The rest of us had done our best to drive away his fears, but now it dawned upon us that he, perhaps, was right. The long low slope proved to be but the upper edge of a wide open valley leading down from the ridge we had followed to the valley which we had taken for the Cobb on our north. This we now saw had turned south, and just beyond the high peak, which from a distance we had called Mount Arthur, seemed to veer even to the south-west, where it appeared to join the other branch of the Roaring Lion, which all morning had lain along our southern flank. Clarke and I pushed on, still hopeful that the river to our left turned yet again and that the

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plateau we were seeking lay close beyond the mass of broken rock, now towering close above us, which we had taken for Mount Arthur ; but one view from that peak convinced us both. We had followed down a long ridge between two tributaries of the Roaring Lion, and the Mount Arthur plateau and our man with his store of provisions lay eight miles at least to the north-east. With a good day's supply of food that distance—even though it lay across a broad, deep valley—would not have daunted any one of us, but we remembered the Ugly, and the length of time we had taken to cross its one branch. The valley intervening between ourselves and the point where we supposed Mount Arthur lay, though all was hidden by the smoke in that direction, was branching, and we hesitated, tired as we all were, to start a trip, which might perhaps take days, on the scant provisions still remaining. Still, what course remained ? One only occurred to us—to return the long journey by the ridge along which we had come to Heart Lake and thence make our way down the Aorere River to Eliot's house—the first habitation on that stream some forty miles below. However, we did not come to a decision at once. Clarke and I set to putting up the camp, while Marshall and Cadigan left to hunt wekas.

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It was a lovely evening, calm and peaceful. The air was filled with the cries of birds; kakapos murmured from beneath the spreading beeches which grew around the camp; kiwis called shrilly to their mates from holes in the long slopes of yellow tussock which rose behind us; wekas screamed from the edge of the great forest, blue in the smoke of the valley far below us; a friendly robin chirruped confidently in the branches beside us. All, however, must have smelt danger, for our hunters returned without seeing a living thing upon which to test their skill in killing with stones—the primitive and only weapons at their disposal.

That night our course was decided. We had no reserve to come and go on. We thought we could reach Eliot's house in two days by forced marches from our camp, while we had no idea how long the journey across the valleys to Mount Arthur would occupy. We had two meals remaining from our original store; one of these we ate before we left our camp, most of the other we finished at our old dinner halt on Heart Lake, which we reached at noon the next day. That same night, about eight miles down the river, we camped in a cave, for it was raining, and we had left our tent as well as all the impedimenta we could spare at our camp of the night before. It was fortunate for us that wekas are so filled



LIMESTONE ON THE AORERE RIVER.

THE MOUNTAINS AT THE HEAD OF THE AORERE AND THE HEAPHY.

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with curiosity that they wander into any camp, probing into every corner, regardless of the consequences. Hardly had we stopped when two fell victims to Cadigan's deadly aim. Great was the shout of joy which we four tired, hungry men raised as each dropped beneath the stone which he flung at close range. This was no time to be "sporting."

Next morning, long before dawn, when from long boiling both birds had grown tender, we ate the unsavoury stuff, each man keeping his supply of bones, to which the tough meat hung tenaciously, to chew on the long weary day of tramping which lay before us. I shall not dwell upon the journey; there was no variety. We would scramble over the boulders on the bar along one side until it ended in a cliff of solid rock, then we would wade the stream till the cliff ended, or perhaps cross and follow down the bar on the opposite side, to wade over again when that finished.

I remember as we rested once, pondering upon our plight, Cadigan made us all start on afresh after a weak but hearty laugh, by begging for one of the dried apricots—about a dozen of which I carried in my swag as a last resort. "If I could have but one of those," he said, "I would be twice the man." Dear, inimitable Irishman, we were all refreshed by the way he

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put it. About the middle of the afternoon of the seventh day of our journey we reached the mouth of the Burgoo, a large stream entering on the right about twenty-five miles below Heart Lake. Here an old camp made by the Geological Survey topographer the year before lay in ruins. In vain we searched among the refuse for something to eat, which perchance we thought might have been left behind when it was deserted months before. Then we were off once more, now travelling easier, for here and there we found a trail showing near the river bank.

At nightfall we still trudged on, having reached that stage of fatigue and hunger when no one spoke. Our hunter had missed weka after weka on the march, and our outlook for supper so late in the day looked blue. As we sat for a moment deciding whether or not we should try to keep going during the night, one of these hapless birds screamed from a thicket near by. Cadigan was hot in pursuit, and in a few moments had returned with a shout of glee, his merry eyes sparkling, holding aloft a fine old bird which would give a snack for all. A few minutes later we rounded a sharp bend in the river and came suddenly upon a clear broad pool beneath a waterfall. A mother and four half-grown young grey mountain ducks floated serenely upon its placid surface, heedless, in so

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secluded a resort, of the barbarians who were near them. It seemed hardly possible that four men erstwhile so silent and so subdued could in a moment develop such vigour and ferocity. We surrounded the pool and bombarded our prey with a volley from four sides—the mother flew away, but three of the others fell victims, after swimming, diving, and every other method we could think of besides rock-throwing had been used to make the capture. Then having camped we feasted far into the night, and began eating again before dawn. Our troubles were over, and before noon next day we were safe at Eliot's.

Less than a year later an inspection of an asbestos deposit took Clarke and me to the plateau of Mount Arthur. In the early morning sunshine of a brilliant day we sat on Mount Peel—its northern outpost rising high above the valley of the Cobb—and scanning the country to the west, now clearly outlined before us, saw where we had made the mistake on our eventful journey. The ridge we should have taken was the one which ran north from the spot where Clarke and I had sat after ascending the slope from Heart Lake on our fourth day out. This we could see turned afterwards north-east and then east. On its southern slopes rose so many tributaries of the Roaring Lion that we felt

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thankful we had decided against traversing with so scant a supply of food the valley which lay beneath us on our fifth night's camp, and had rather followed a longer way to provisions and safety down the Aorere River. Even by that route we owed comparative comfort, if not our lives, to that strange creature, the humble weka.



Photo Z. J. van Dijk

MOUNT COOK AND THE HOCHSTETTER ICE FALL.

CHAPTER VII

THE HEART OF THE SOUTHERN ALPS

To the mountain lover perhaps no other part of New Zealand is more attractive than the central portion of the Southern Alps which surrounds its highest peak, Mount Cook, 12,349 feet in height. Close to Mount Cook are the other giants of the Alps—Mount Darwin, Mount Malte Brun, the Hochstetter Dom, Mount Elie de Beaumont, Mount de la Beche, Mount Haidinger, Mount Lendenfeldt, the Silberhorn, Mount Hector, Mount Tasman, Mount Stokes, and Mount Sefton. All are over 9000 feet in height, and all stand on or near the Island Divide. Around lie spacious snowfields, from which flow the greatest glaciers of New Zealand—the Godley, the Tasman, the Hooker, and the Mueller to the east, and the Franz Josef, the Balfour and the Fox to the west.¹

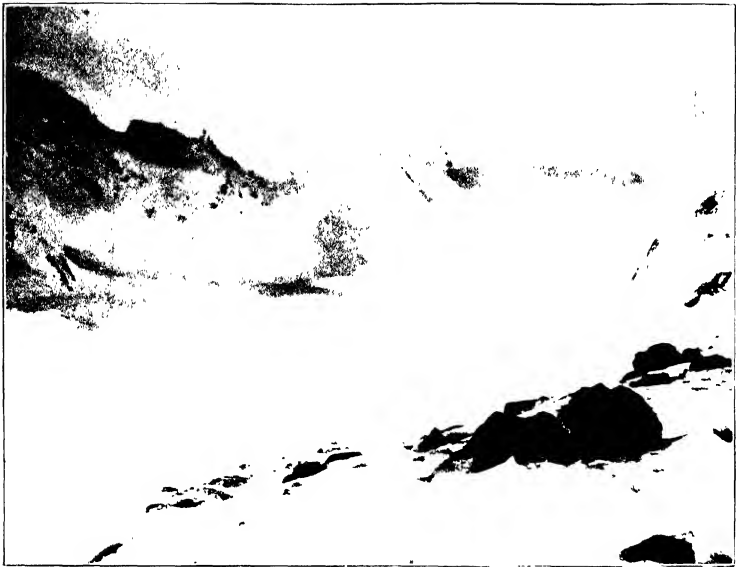
¹ In connection with the part of New Zealand described in this chapter, *Aorangi*, by Malcolm Ross ; *The High Alps of New Zealand*, by the Rev. W. S. Green (out of print) ; *With Axe and Rope in the*

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A view obtained from various points of vantage on the divide discloses to east and west the salient physical features of either watershed. Towards the west the country rapidly descends to the Tasman Sea ; the rugged snow-clad peaks are replaced, near at hand, by mountains with snow only on their summits and with their lower slopes thickly wooded. Farther to the westward are wooded hills free from snow, which still nearer the sea pass abruptly into flat or rolling lowlands, covered with dense forest. Towards the east the descent of the country is also rapid, but not nearly so much so as on the western side. The mountains gradually decrease in altitude and finally merge into the rolling treeless stretches of the Mackenzie and Upper Waitaki Plains, above which only an occasional mountain rises. The sparsity of forest on the eastern side of the Alps stands in marked contrast to the luxuriance on the western side, and only at a few sheltered spots near the river courses are groves of trees found.

Practically all the mountains in the area now being described which rise above 7000 feet are covered with perpetual snow, and there are fair-sized snowfields at even lower altitudes. The depression of the snow-level in New

New Zealand Alps, by C. E. Mannering ; and *Der Tasman Gletscher und seine Umgeberg*, by von Lendenfeldt, are of interest.



HEAD OF TASMAN GLACIER.

Photo. A. J. C. 1907



VIEW OF TASMAN GLACIER, SHOWING GRAHAM SADDLE AND MOUNT DE LA BECHE.

Photo. A. J. C. 1907

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Zealand is apparently due in part to the mountain chain being disposed at right angles to the direction of the prevailing moisture-laden wind, and in part to a moist climate, exhibiting a very small range of temperature.

The Tasman, the longest and widest glacier in New Zealand, has a length of eighteen miles from its source at the base of the Hochstetter Dom to its terminal face and a maximum width of $2\frac{1}{10}$ miles.¹ The Tasman River, which flows from the frontal face, enters Lake Pukaki after a course of about $23\frac{1}{2}$ miles, anastomosing in many constantly changing channels through a broad flat valley, bordered by low morainic hills which stretch to the base of the mountains, on either side.

The Hochstetter Dom, at the head of the Tasman, descends steeply to the Whymper Glacier at the head of the Wataroa River, flowing to the west coast, but comparatively gradually to the eastern side of the Alps. Below the huge *bergschrand*, which almost completely girdles the summit of the Dom, the ice of the upper part of the Tasman is remarkably smooth for about four miles, when crevasses disposed with striking regularity almost at right angles to the

¹ *Geography of New Zealand*, p. 157 *et seq.*, by P. Marshall ; "Ice-Motion of the Canterbury Glaciers," *New Zealand Alpine Journal*, October 1894, by T. N. Brodrick.

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course of the glacier first become prominent and thickly seam the ice for four or five miles. In the lower five or six miles of the glacier, where moraines completely shroud the ice, crevasses are not especially evident, though the surface of the ice, in ridges, hummocks, and hollows, is extremely uneven. Lithologically the morainic material consists entirely of greywacke and argillite, of which interstratified rocks the adjoining hills are composed. The morainic material is of all sizes from fine powder to blocks weighing hundreds of tons. Some of the coarsest debris is that brought down by the Kron Prinz Rudolf Glacier. Striated pebbles and boulders are comparatively rare, the rocks being on the whole too soft to retain the scratches well. The boulders are mostly angular or sub-angular, but occasionally are rounded by abrasion with other boulders within the glacier.

On the western side of the Tasman Glacier, for some six miles above its terminal face, appears a deep boulder-strewn trough between the lateral moraine of the present Tasman Glacier and the smoothed slope of the Mount Cook range which formerly formed its border. At intervals along this curious trough, boulder fans enter from the mountain slopes, which in some places dam back small ponds of water issuing as springs from beneath the lateral moraine, in places 165 feet

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in height. Several of these, situated near the terminal face of the glacier, with water of a deep blue, and with thick Alpine scrub and gay Alpine flowers round about, are of remarkable beauty.

The Tasman Glacier gives no direct evidence of any decided permanent advance or retreat in recent years, though there are naturally minor changes in position depending on the condition of the snowfall. Some slight evidence of an advance of the Tasman within the last few years is given by the partial demolition of a lateral moraine which borders the glacier on the west, and which is sufficiently old to have become fairly well covered with vegetation. The process may, however, indicate merely a change in the course of the glacier.

The Darwin, entering between Mount Malte Brun and Mount Darwin, forms the most prominent tributary glacier of the Tasman on the eastern side, while the largest tributary glaciers entering from the west are the Ball, Hochstetter, Haast, and Kron Prinz Rudolf. Towards the lower part of the Tasman Glacier numerous small streams of water descend in abrupt waterfalls from small U-shaped hanging valleys perched high on the mountain-sides.

The Ball Glacier, which originates on the Mount Cook range, and descends therefrom in a

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series of ice-falls, enters the Tasman in a heavily moraine-covered train. It is remarkable chiefly from the fact that its course is north 50° east, whereas that of the main glacier is south 10° west.

Perhaps there is no finer sight within the Southern Alps than the great Hochstetter Ice-fall. The glacier descends nearly 4000 feet in a great cascade almost three-quarters of a mile in width. The *séracs* of splendid proportions rise in places over fifty feet in height, separated by yawning crevasses of great depth. The glacier rises in an ice plateau a mile long by three-quarters of a mile wide, lying at the base of the Linda Glacier falling from the eastern slopes of Mount Cook.

The Haast Glacier, which descends from the *névé* surrounding the mountain of the same name, also exhibits a series of imposing ice-falls. The Kron Prinz Rudolf Glacier, originating in the snowfields around Graham's Saddle, carries much moraine to the main ice-stream.

A short distance below the frontal face of the Tasman Glacier, the Tasman River is joined by the Hooker stream, which carries the water from the Mueller and Hooker Glaciers. Near its source the Mueller Glacier flows almost north-east, while in its lowest reaches its course is to the south-east. It makes a complete turn



MOUNT SEFTON AND THE MOORHOUSE RANGE FROM TASMAN VALLEY.

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around the rugged buttress of Mount Ollivier, which marks the northward extension of the Sealey range. The Mueller glacier is formed by the union of many small ice-streams flowing from the Sealey and Moorhouse ranges bordering it on either side. Like the Tasman, the lower part of the Mueller is thickly strewn with boulders, many of huge size. The surface, more irregular than that of the Tasman Glacier, shows rough ridges, sharp pinnacles, and deep hollows, while abrupt descents, or minor ice-falls, make travelling difficult in places. The lateral moraines near the frontal face of the Mueller are of great size and height, the highest having a local relief of quite 370 feet. The outer ridges are clothed with thick Alpine forest, then appear in succession ridges with mountain scrub, ridges gay in summer with Alpine flowers and grasses, and, nearest the ice, ridges of bare morainic debris.

In times of flood, the water rises turbidly from beneath the high cliff of ice at the foot of the Mueller with geyser-like force. Sometimes, also, it bursts through the lateral moraines and seeks an exit to the Hooker River.

The Hooker Glacier occupies a deep valley between the precipitous slopes of the Mount Cook ridge and the eastward-facing flanks of the Moorhouse range. It is formed by the union of many glaciers which descend in ice-falls from the

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ridges on either side, but chiefly from Mount Cook itself, and from David's Dome—a fine snow-covered mountain which marks the termination of the Mount Cook ridge at the Island Divide. Like the Tasman, the Hooker occupies a strike valley. It is covered with heavy morainic debris for $4\frac{1}{2}$ miles from its frontal face, and is bordered by lateral moraines for many miles up its course. On the eastern side of the glacier, opposite Fitzgerald Pass, there are no fewer than six of these lateral moraines disposed in terraces—the lowest being on the edge of the present glacier.

Neither the Hooker nor the Mueller Glacier has shown any decided advance or retreat within recent years, though there have apparently been slight minor changes in the position of their terminal faces.

Near the frontal faces of the Tasman, Mueller, and Hooker Glaciers, and close to the very base of Mount Cook, is situated the isolated accommodation house of "The Hermitage," owned and conducted by the Government of New Zealand. "The Hermitage" is easily reached from the eastern coast by a good coach-road, which traverses the dreary Mackenzie Plains from Fairlie—the nearest point on the New Zealand Government Railway. From "The Hermitage," two well-known routes lead across

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the Alps. One crosses Graham's Saddle at the head of the Kron Prinz Rudolf Glacier to the Franz Josef Glacier, the other traverses Fitzgerald's Pass, near the head of the Hooker Glacier, into the valley of the Copland.

For the convenience of climbers and tourists, the Government has provided huts at several places in the Alpine region. The one at the frontal face of the Franz Josef Glacier and that at the frontal face of the Fox form satisfactory bases for carrying out exploration among the little-known mountains of the West Coast. The two in the Tasman Glacier valley—the Ball about fourteen miles above “The Hermitage,” and the Malte Brun about twenty-four miles above—are convenient starting-points for climbing most of the highest peaks of the locality. The former lies on the western side of the glacier close to the point where the Ball Glacier joins the Tasman, while the latter is situated on a rocky shelf high above the eastern edge of the glacier, at an altitude of about 5600 feet.

The climate of the Alpine region, even more than in most mountainous parts of the world, is fitful and uncertain. Sometimes radiantly fine weather will last for days, to be replaced with great rapidity by storms of tempestuous fury. Snow falls nearly every month of the year at “The Hermitage,” and often dense fogs creep

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up the ice-filled valleys and hang about to the great aggravation of climbers. However, perhaps this very feature may add to the charm of the Southern Alps when satisfactory conditions prevail. Generally the weather is more dependable on the East Coast than on the West, though even there no reliance can be placed upon its behaviour. Probably the best time for climbing is during January and February, though in some years the finest weather is either in December or March.

My first trip to the Southern Alps during February and March 1906 was memorable, not only on account of the pleasing impressions left by our explorations amid such wonderful mountain scenery, but because of the thrilling adventures experienced by R. S. Low, a Scottish Alpinist, who would have been of our party had an unfortunate accident not prevented him.

Low had been climbing with other friends in the little-known region at the head of the La Pérouse Glacier on the West Coast, and had agreed to meet Marshall and me, if weather conditions were favourable for crossing the Alps, on the 17th of February or thereabout. His decided objection to the route across the Alps by way of Fitzgerald Pass, owing to the wearisome trudge up the Copland Valley before the actual mountains at its head were reached, led me to



VIEW FROM MALTE BRUN TERRACE, SHOWING MALTE BRUN HUT AND MOUNTS TASMAN, HAIDINGER, AND DOUGLAS.
Dr. W. N. S. Lloyd / Photo

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believe that he would cross by the less arduous if somewhat more dangerous path by way of Graham's Saddle. Accordingly, on the 16th, Marshall, Jack Clarke, and I, with the intention of surprising Low by meeting him on the summit of the Saddle next day, arrived at the Malte Brun. The ordinary route from the hut is to traverse the Tasman Glacier obliquely to its junction with the Kron Prinz Rudolf, and thence follow up the latter. On this occasion, however, Clarke decided to vary the route. We crossed the Tasman almost at right angles from the Malte Brun, and from its farther shore pursued a slanting course up the lower slopes of Mount de la Beche. Scree slope, a long irregular *arête*, and a short *couloir* led us some thousands of feet to a point just above the lower part of the snowfields leading to Graham's Saddle, and just above the ice-fall which marks the upper part of the Kron Prinz Rudolf Glacier. Here a descent of less than a hundred feet down steep cliffs gave us a little difficulty, but soon we were safe on the ice below, and trudging deep in snow in the strong heat of the mid-day sun towards the Saddle. The snowfields at the head of the Kron Prinz Glacier are larger than one would imagine in viewing them from below, and proved the most wearisome part of an otherwise delightful climb.

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When we reached the Saddle we found to the westward a disappointing view. Widespread clouds blotted out the distant lowlands and ascended over the lower mountain slopes. Only the upper snowfields and the higher peaks close to the divide appeared above the gloom. Even across these from time to time stray clouds floated to vanish away in the blue sky on the eastern side of the mountains. We waited for a couple of hours on the pass, hoping Low would arrive, but no one appeared. When there remained only sufficient daylight to descend, we departed, having come to the conclusion that his trip from the West Coast had been impossible, owing to the heavy fog which so evidently prevailed there. In our return journey we descended by the regular route, glissading down a long *coulair* below the upper broken ice of the Kron Prinz Glacier, and then cutting our way down the face of the lower ice-fall to the moraine-strewn ice below. The next day, the 18th of February, broke stormy. Partly on this account, and partly with the hope that Low might have crossed by the Fitzgerald Pass route across the Alps, and be at "The Hermitage" before us, we determined to beat a course thither.

On our arrival we were disappointed to find Low had not appeared, but felt no special alarm, knowing how difficult it is to keep to

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dates in a mountainous country. Moreover, our minds that evening were relieved by the receipt of a telegram from our friend, which had been brought in by coach from Lake Tekapo, the nearest telegraph office. It ran—"Weather bad on West Coast. Hope to get over as soon as it improves." By the outgoing coach the following morning, the 19th, I wired Low to remain on the western side of the Alps, as Marshall, Clarke, and I hoped to leave soon to meet him there.

Though the weather was better on the 19th, it was so uncertain that we decided not to make a start for the West Coast. The wisdom of our decision was evident, as on the 22nd the weather became much worse, and for four days storms of tremendous fury raged in the mountains. The ground was covered with snow even at "The Hermitage," at an altitude of 2500 feet, and at greater heights the hills were shrouded in a thick white mantle. In vain we hourly watched the barometer for an improvement. It seemed to rise only to fall lower than before. For an hour or so the mists would clear away, only to come down again thicker than ever. At last, on the 27th, a fine day dawned, though it was somewhat uncertain when later in the morning we set out for the West Coast, via Fitzgerald Pass.

As far as the base of the pass, some six miles

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up the Hooker Glacier from "The Hermitage," the route, which follows the left bank of the glacier to a point nearly opposite the pass before crossing to the other side, is somewhat dull and wearisome. From the glacier to the pass the change from scree slope to *arête* and, as one nears the top, to snow slope, gives pleasing variety. The ascent presents no difficulty or danger whatever, except in a few places where the rocks are loosened on some steep inclines. On this occasion, however, the snow which had fallen in the recent storms made the climb especially arduous and wearisome. Though Marshall or I at times took the lead, most of the burden of breaking the trail fell to Clarke, who sank to his knees at almost every step. This was the first arduous trip I made with Clarke, and I wondered then, as I often had reason to marvel on other occasions later, how he managed with a heavy pack on his back to so cheerfully undertake the most wearisome duties. Always reliable, in the mountains he seemed at his best, when great skill was required or when dangers or privations beset us. Ordinarily it does not take more than two or three hours to reach Fitzgerald Pass from the Hooker Glacier, but we were at least five in gaining the summit. On our arrival there, about half-past six in the evening, the snow had frozen



Photo. N. C. Tanager, Dept.

THE BOULDERY BED OF A SOUTH WESTLAND RIVER.



Photo. N. C. Tanager, Dept.

VIEW OF MOUNT COOK LOOKING UP HOOKER RIVER.

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hard on the steep though short slopes on either side, and here a little difficulty faced us, which required some cutting and careful climbing before we were safe on the more gradual slope beyond.

A dense fog completely shrouded the mountains to the westward, but down the slope into the gloom we romped and glissaded as quickly as the soft snow would permit, with Clarke leading the way. An hour's descent over snow slope, talus slide, and tussock brought us to the valley of the Douglas—at this point a small stream, not far below its source in the Marchant Glacier. Here, just as it was getting dark, we spread our blankets on a patch of gravel for the night, and, dead tired, were soon asleep.

About five miles below the western base of Fitzgerald Pass, the Strauchan River, flowing from the glacier of the same name, joins the Douglas River from the north-east, and together they form the Copland River proper. The united stream, after a course of about twelve miles, joins the Karangarua some ten miles distant from its mouth.

Like all the rivers flowing to the West Coast, the Copland shows strongly the influence of glaciation. The valley is U-shaped in cross section, and is remarkably straight for long distances. The moraine-filled floor is bordered

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by steep rocky slopes, in places almost or quite precipitous. The tributary streamlets enter generally at considerably higher grade than the main stream, and often in steep falls, from valleys perched high above the local base-level. The route from the western base of Fitzgerald Pass follows the left bank of the Douglas and Copland rivers to Welcome Flat, situated about six miles below the junction of the Douglas and the Strauchan.

Welcome Flat is well named, for walking in the open tussock, with only occasional patches of scrub, gives a singularly pleasing change from jumping over immense boulders in the channel of the stream, or toilsome scrambling through the dense and soggy undergrowth along the river bank. Just below Welcome Flat, the route crosses to the right bank, at a point where hot springs occur. These rise in a small flat-topped mound of brownish sinter exhibiting miniature terraces. The water issues at a high temperature, but below the boiling-point. The sinter mound is surrounded by a luxuriant growth of tree fern and New Zealand flax, while close at hand is a cave beneath an immense erratic, apparently but slightly removed from its original position, at the base of which is a spring heavily charged with hydrogen sulphide.

We reached the hot springs quite early in

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the afternoon, but so tired from the fatigue of buffeting with the vegetation that after a soothing bathe in the warm spring water we were glad to arrange quarters for the night. We slept in the cave, with a great fire burning at the entrance, to keep off the mosquitoes. The bones strewn over the surface of the floor, showing the feasts of former explorers, made us feel, in the sooty atmosphere, like troglodytes of old.

Clarke left us next morning to return to "The Hermitage," where he expected to arrive by nightfall. Meanwhile, Marshall and I continued our way down the Copland. There was no difficulty in finding our route, because a rough blazed trail followed the river for some miles below the hot springs, leading up and down over the ridges separating the numerous streams tributary to the Copland on the north side, and finally descending to the valley floor at the mouth of Architect Creek. The latter is a treacherous stream to traverse, and until a bridge was built, subsequent to the time of which I am writing, always gave difficulty to the traveller. In times of flood it was quite impossible to cross, and a party of early mountaineers were held up here once until starvation stared them in the face. Fortunately at this juncture the water went down somewhat, allowing them to cross, but their hunger was so great that they fell upon the first

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sheep they encountered on the grassy flats along the river below without waiting to reach Scott's house, nine miles from Architect Creek.

On arriving at Scott's house late on the afternoon of the 1st of March, our first inquiry of Scott was for Low, whom we fully expected to find awaiting us here. To our great surprise, Scott replied that he thought Low had left Waiho, near the frontal face of the Franz Josef, by the Graham's Saddle route, for "The Hermitage," over a week before. We saw at once that that was before he could have received my wire not to come. This had been sent from "The Hermitage" on the morning of the 19th, but it would not have been despatched from Lake Tekapo, the nearest telegraph station to "The Hermitage" on the East Coast, till late on the 20th. There was no telegraph station at the Waiho, the southern limit of the wire being at "The Forks," twelve miles to the north. If the telegram had reached that point on the 20th, it certainly had not been forwarded to the Waiho till the 21st, and possibly not even then, so scant is the communication along the Great South Road, the trail through the West Coast wilderness connecting the various isolated settlements.

As we rapidly made these calculations, we thought of the terrible weather, of the days of

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raging snowstorm that we had experienced before leaving "The Hermitage," and were filled with alarm for Low's safety. Our first thought was to reach Waiho, to ascertain complete details. We hoped that by some chance Scott's information gained from some passing traveller might prove incorrect. Marshall and I would have liked to leave at once, but Scott assured us that travel along the trail was impossible at night. Before dawn next morning, however, we were in the saddle. The track from Scott's to the Waiho leads across several wide shingle-strewn river flats, with rapid streams coursing through them, and traverses several bush-clad ridges, now passing through deep defiles, or again clinging to rocky precipices. Fortunately the weather was fine, and the rivers fordable in consequence. At the best one makes poor progress on the rough mountain tracks, but by pushing steadily forward we reached the Waiho before noon. There we learned that the news Scott had given us was too true. Low had left on the 21st, before my wire had arrived. Alex. Graham of the Waiho, an excellent mountaineer and brother of Peter Graham, a well-known guide at "The Hermitage," had accompanied him as far as Mildred Peak, in sight of Graham's Saddle, and there, apparently beyond all danger, had left him to cross the

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Saddle alone, and make his way down the Tasman Glacier to "The Hermitage." Later, from a high point, Alex. had caught a glimpse of Low passing over the Saddle to the eastern side of the Alps.

Through a wire that had been sent to a mutual friend of Low and myself in answer to an inquiry regarding Low's address before we had left "The Hermitage," it had become known that Low had not reached there on the date expected. Consequently, being somewhat uneasy in his mind, Alex. Graham had left Waiho the very morning that we arrived to go as far as Graham's Saddle and, if necessary, on to "The Hermitage," to see if any trace of Low could be found. It was still hoped that he might be safe somewhere with Marshall and me, but all hope on that score was removed by our arrival. Marshall and I at once realised that a search party must be formed, but Alex. Graham was too far away to permit of his being overtaken, and he alone at the Waiho knew the route over Graham's Saddle. However, at Ross, some eighty miles to the north, lived an enthusiastic mountain-loving clergyman, the Rev. H. E. Newton, who on several occasions had travelled by the Graham's Saddle route during his extensive explorations in the mountain country. The first thing to do was to get into communication with

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him, to lead the party from the West Coast, and then to telegraph to "The Hermitage" to have parties started from that point.

Thus, after a few minutes spent at the Waiho, in order to grasp the situation, I was again on horseback, bound for the telegraph station at "The Forks." Telegrams were sent to Clarke, at "The Hermitage," explaining the matter fully ; to M'Donald, caretaker of "The Hermitage," telling him to open Clarke's wire in case the latter had not yet returned from the Copland or was absent on some other trip ; and to the Postmaster at Lake Tekapo, asking him to spare no expense in sending a horseman forward with the wires at once to "The Hermitage." Fortunately, I was able to get hold of Newton at once and to speak with him over the telephone. In the hour of danger, Newton did not take long to arrange for a substitute for his religious duties, and by six o'clock was on his way south. I often wonder how he managed to find his way along that wild forest road, and on foot ford with his bicycle the numerous mountain torrents, many of which are impassable even on horseback, except at low water, but by eleven o'clock the next morning he had reached Waiho. He was tired when he arrived, but, never thinking of his own discomfort, he, with Marshall and Batson,

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the inn-keeper at the Waiho, was soon off to the mountains, hoping to join Alex. Graham.

Fortunately, both Jack Clarke and Peter Graham were at "The Hermitage" when the telegram arrived about four o'clock on the afternoon of Friday, the 3rd of March. They had just returned from a tedious ascent of Mount Cook, and were preparing for bed, as neither had slept for two days. The two guides were aghast at the news. Both had climbed with Low, and knew him to be careful and skilful. They could scarcely believe an accident had occurred. Though thoroughly tired, in less than an hour they were off for the search, forgetting nothing that could make Low comfortable, should they by any chance find him alive, or to bring his body back should he be beyond relief. There seemed one chance only for Low, that having met with some accident in descending the Kron Prinz Rudolf Glacier, he had been able to reach a rough bivouac formed by a large boulder situated high up on the moraine, at the junction of the Kron Prinz Rudolf Glacier and the Tasman. However, it hardly seemed possible that any one could live ten days at so high an altitude, and without food, through the dreadful storms that had lately swept the mountains.

Usually it takes the average tourist two days to reach this bivouac, which is about twenty-four

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miles above "The Hermitage." Only those who have travelled the rough glaciers of New Zealand, stacked with moraines and gashed with innumerable crevasses, can realise how tedious are the eight miles of the journey thither from the Ball Hut. The journey is difficult in the briallint sunshine of mid-day. It is dangerous by the flickering light of a lantern on a dim and foggy night. Yet these two brave men laden with heavy packs never stopped, but travelled steadily on, threading their way across narrow ice bridges connecting the *séracs* between great crevasses, gaping on either side. About four o'clock on Saturday morning they drew near to the bivouac and called loudly together, praying with a faint hope, which neither expected to be realised, that Low yet lived and was there. The calls echoed through the moraines and resounded above the roar of avalanches almost constantly descending from the surrounding mountains; but no response gladdened their anxious ears. Again they called; again there was no reply, save the echo from the precipices on either side. "Too late, Peter," said Clarke laconically, but they pushed on. Suddenly they heard a faint cry. It seemed scarcely human, but was like the strident shriek of the kea, the New Zealand mountain parrot, when heard faintly in the distance. "Surely that

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can't be he," said Peter, as they bounded on over the moraine. But it was. There in the bivouac they found him, emaciated and wretched, but still alive. It is unnecessary to describe the joy of their meeting. After the terrible strain of the past few days Low broke down, and the kind-hearted Peter lifted the big man in his arms and held him as if he were a child. Restoratives were administered and soon, brokenly but coherently, he was able to tell his story.

After Alex. Graham had left him on the 21st, he had crossed Graham's Saddle safely, and was well down the eastern side. Then at a steep snow-slide he had decided to glissade. Soon after starting he had lost his ice-axe, and on reaching the end of the slope, unable to stop himself, had bounded on to the rocks and slipped some twenty feet. In the slip he dislocated his ankle and lacerated his knees, besides sustaining several minor injuries. The pain was intense, and for some hours he lay dazed. When he came to himself the sun was low, but he determined to crawl onward and pull behind him with his Alpine rope the small pack which contained his sleeping-bag. How he managed to scramble down the steep ice-fall of the Kron Prinz Glacier thus encumbered is a mystery almost too marvelous to unravel. To thread one's way down steep snow-slopes and past yawning *bergschrunds*

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is difficult even to a sound climber. It seems scarcely credible that to a man so badly maimed there remained courage to attempt it. Even when he reached the flatter part of the glacier the seemingly endless moraines and crevasses must have been heart-breaking.

Travelling indeed was slow, for the pain in his dislocated ankle was so intense that he could not bear to put his foot to the ground. The constant crawling on his knees gradually wore away the skin, and laid bare the bone. At nights he huddled into his sleeping-bag and rested wherever darkness found him, or when the agony of his wounds prevented further travel. Meanwhile, the terrible snowstorms were unceasing, and the constant gnawing of hunger, for his small supply of food had early given out, was added to his acute external pains. Late on the fourth day he reached the bivouac which he had known the year before. Here nature asserted herself: he was too weak to travel farther. For six days he lay there, never really losing consciousness, save on a few occasions when he fell into a fitful sleep to dream he was eating a sumptuous repast or falling over a precipice. Every day he expected that some one would come, and one can well imagine the joy with which he welcomed Clarke and Graham when hope had almost ceased to exist.

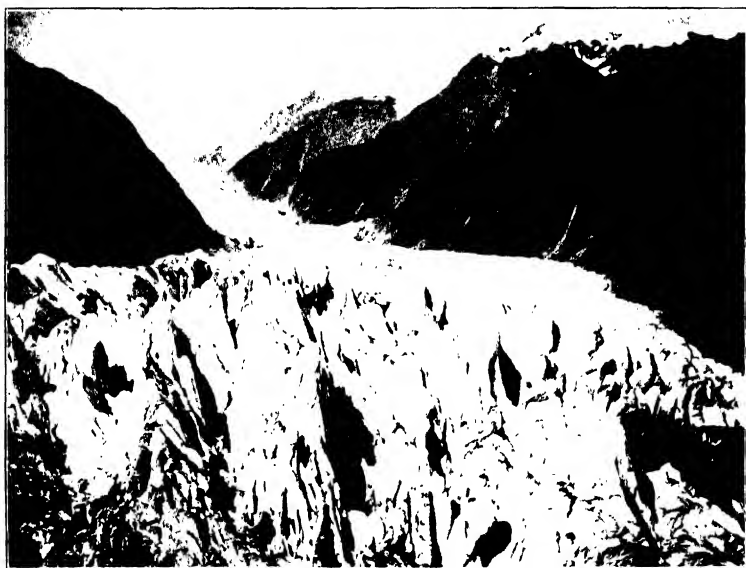
THE WILDS OF MAORILAND

Immediately on finding Low, the rescuers let loose a carrier-pigeon which they had brought with them, bearing to "The Hermitage" the glad news, and at the same time to ask that some one be sent to the bivouac to relieve them and to bring forward a doctor who they knew was at "The Hermitage." When this help arrived, their first thought was to cross Graham's Saddle to tell the West Coast search party under Newton that all was well ; and this they did, despite the fact that as yet they had had no rest and that a persistent cold wet fog hung dark and gloomy over the storm-filled mountains. On Sunday night they were back again, and together next day they carried Low down those eight wearisome miles of moraine and crevasse from the lonely bivouac to the Ball Shelter Hut. Thence, after a day's rest, he was conveyed on a pack-horse, on an improvised padded stretcher, made by the ever-resourceful Clarke out of a sheet of galvanised iron and two boxes, down to the coach-road and thence to the nearest hospital.

During the year following Low's accident I made my second visit to the Southern Alps. The description of this journey on that occasion will be left to a succeeding chapter. Let me now pass on to the summer of 1909, when during February, in company with Lawrence Earle and the two guides, Jack Clarke and



LOOKING DOWN THE FRANZ JOSEF GLACIER TO THE VALLEY OF THE WAIHO.



Photo, N. C. Frost and D. M.

THE LOWER ICE OF THE FRANZ JOSEF GLACIER.

THE HEART OF THE SOUTHERN ALPS

Alex. Graham, I carried out somewhat extensive explorations in the vicinity of the Franz Josef Glacier.

The Franz Josef Glacier, with its magnificent surroundings, forms one of the most wonderful sights in the world. On reaching the glacier by way of the track, which passes through the Westland forest and is at present the sole highway through the wilderness, one is struck with amazement at the marvellous beauty and extraordinary characteristics of this remarkable ice-river, flowing in its lower course through a forest sub-tropical in luxuriance. From a prominent position on the lower part of the Kaiser Fritz ridge, which borders the glacier to the west, the entire course can be seen from where it originates high up on the smooth snowfields at the base of Mount de la Beche and the Minarets down the much-broken ice-fall to the great cliff of ice at the frontal face hundreds of feet high and half a mile wide. The contrasts in the *ensemble* are amazing. From beneath the shade of a tree fern or mountain cabbage tree one may look down upon the much-séraced and pinnaced ice of the glacier, and up on to a gorgeous array of snow-clad peaks.

From its source to its frontal face the glacier flows nearly north and south. In its upper

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reaches it receives numerous tributary glaciers, some of which descend to the *névé* from the Kaiser Fritz range on the west, or the upper part of the Baird ridge on the east, in a series of ice-cascades, while others join it with more gradual grade. Below the great ice-fall only one tributary glacier, the Almer, joins the main glacier directly ; the others are connected with it by streams of water, which generally flow in a series of waterfalls to the Franz Josef. To the lower part of the glacier and to the Waiho River below, numerous streams tumble steeply down the precipitous mountain-sides on the east and west to reach the local base-level of the valley.

Compared with the glaciers on the eastern side of the Alps, the amount of moraine carried by those of the West Coast is in general remarkably small, and the Franz Josef forms no exception. This is apparently due mainly to a much more abrupt descent of the Westland glaciers than those flowing to the East Coast, a feature which gives a proportionately more rapid rate of flow and a consequently quicker removal of the waste material. It is also due in part to a difference in the composition of the rocks through which the glaciers on either side of the Alps pass. The West Coast glaciers flow partly through hard schist and

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partly through easily disintegrated argillite and greywacke, while those around Mount Cook flowing to the East Coast pass only through the latter. The West Coast glaciers which flow only through the soft upper rocks have proportionately a much greater amount of moraine than those which traverse the harder lower series of rocks as well.

Glaciated surfaces are beautifully apparent along the Franz Josef, as along other West Coast glaciers. One sees well-polished rock walls, exquisitely smoothed *roches moutonnées*, abundant glacial scratching and gouging on the solid rock surfaces, and striæ on the morainic boulders. Most of this is the result of past glaciation, and owes its excellent preservation to the hard nature of the rocks. Some of it, however, is apparently of modern origin, as striations at the very border of the ice and the many striated morainic boulders carried by the glacier seem to testify. It seems certain, however, that glacial excavation is a much less powerful agent now than in the past. The movement of most of the West Coast glaciers apparently is in general much more rapid than on the East Coast. During the summer and spring of 1908 very careful observations as to the rate of flow of the Franz Josef Glacier were conducted by the Geological

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Survey under the direction of R. P. Greville.¹ It was found to vary at different localities from 1.092 to 2.008 feet per diem. The terminal face of the Franz Josef Glacier, which is in latitude of $43^{\circ} 26'$ south, is only 692 feet above sea-level. As Hochstetter remarks, one would have to travel to north latitude 67° in Scandinavia to see a glacier attain so low an altitude.²

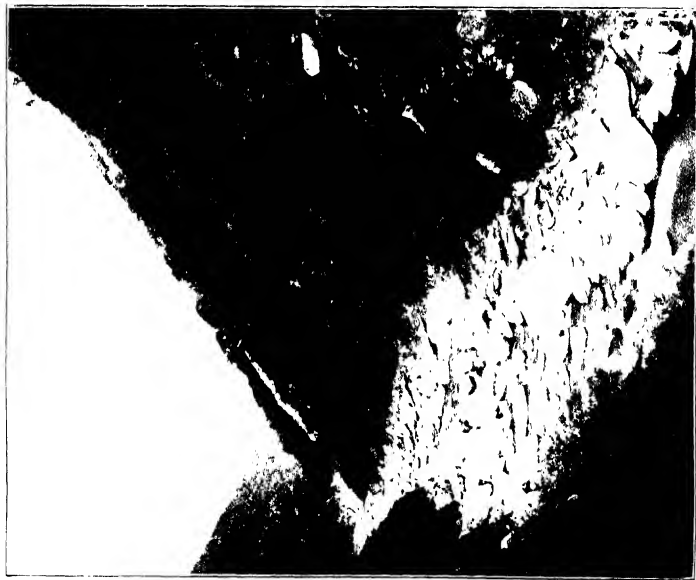
Though the Franz Josef may still be considered a valley glacier of large size, especially if its latitude and the narrowness and relatively low altitude of the Alps be considered, its present dimensions are but a fraction of its former proportions. In former times it deployed on to the narrow coastal plain of Westland and united with ice-streams to north and south, forming a vast *piedmont* ice-sheet above which the isolated peaks and ridges rose as lonely nunataks. As the glacier gradually retreated it left the plain and occupied only the broad valley which in its advance it had enlarged and partly excavated. Up this valley it has slowly receded to its present position, leaving in its train numerous

¹ *A Geographical Report of the Franz Josef Glacier*, by J. Mackintosh Bell, R. P. Greville, and Leonard Cockayne. For details of other measurements of the rate of flow of the Franz Josef Glacier, see *Pioneer Work in the Alps of New Zealand*, by A. P. Harper.

² *New Zealand*, by Ferdinand von Hochstetter, p. 501. The glaciers of Alaska reach sea-level much farther south than those of Scandinavia.



THE SWEEP OF THE FRANZ JOSEF GLACIER.



THE VALLEY OF THE UPPER COPLAND.

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terminal and lateral moraines in the valley through which now flows the Waiho River.

The present glacier, from its frontal face to Graham's Saddle at its head, is about $7\frac{1}{2}$ miles in length, and the widest part is at Cape Defiance, where it is 55 chains across. The glacier may be said to consist of the upper snowfields and the valley portion. The valley or trunk portion of the glacier extends from the frontal face to the crest of the great ice-fall. Throughout this distance the ice is more or less broken. It descends now in a great ice-fall, now in a series of ice-cataracts, and now in a more gradual ice-rapid. The surface is nowhere really smooth, and is nearly everywhere broken by huge crevasses into great *séracs*. The great ice-fall at the upper part of the trunk portion of the Franz Josef forms an imposing sight. Here the ice-rapids from the several great upper snowfields, after descending from the relatively smooth *névé* above, unite to fall over a thousand feet between colossal precipices on either side. The pure white ice, broken into innumerable pinnacles of fantastic shape, is almost free from debris.

Following the investigations of Sir Julius von Haast,¹ who made the earliest technical examination of the Franz Josef, many explorers have visited the great glacier. Perhaps the most

¹ *The Geology of Canterbury and Westland.*

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notable of these were G. J. Roberts, for many years Chief Surveyor of Westland, and that fine old pioneer, Charles E. Douglas. With Douglas was Arthur P. Harper, who did a great deal of Alpine work under trying circumstances, and whose book, *Pioneer Work in the Alps of New Zealand*, forms some of the best literature on the Southern Alps.

The first crossing of Graham's Saddle was made by Harper,¹ with E. A. Fitzgerald,² and the Swiss guide, Zurbriggen, in 1895. These Alpinists did not ascend the Franz Josef, but having traversed portions of the Victoria and Fox Glaciers, crossed Zurbriggen Col in the Kaiser Fritz range, and thence proceeded across the snowfields at the head of the Franz Josef to the Saddle. To Dr. Teichelmann of Hokitika, a keen mountain explorer, the Rev. H. E. Newton, and W. Batson belongs the honour of the first actual complete ascent of the Franz Josef Valley and the traverse of its upper snowfields. These three travellers, after a toilsome ascent, reached the crest of the Baird range, whence they followed across Salisbury and Geikie snowfields to the base of Graham's Saddle. Since then a number of Alpine parties have crossed Graham's Saddle by much the same

¹ *Pioneer Work in the Alps of New Zealand*, by A. P. Harper.

² *Climbs in the New Zealand Alps*, by E. A. Fitzgerald.

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route, or by slight variations thereof, while one daring prospector, Mackay by name, traversed it alone, after spending a chilly night at the nunatak on the upper snowfields of the Franz Josef which bears his name.

While we were carrying out our investigations of the Franz Josef and its vicinity, we pitched our camp beside the shelter hut near the frontal face. During the first two or three days after our arrival the weather was thick, misty, and unsuitable for climbing, but we utilised the time to advantage in mapping the frontal face of the glacier and examining the various *roches moutonnées*, which form so remarkable a feature in that vicinity. Meanwhile Clarke and Graham were fixing a subsidiary camp at Cape Defiance—a prominent promontory on the western side of the glacier, about three miles above the snout, and formed by a lateral moraine pitched against a buttress of hard greywacke. The route from our main camp to this subsidiary resting-place led us by a trail along the eastern side of the glacier as far as Roberts' Point, and thence crossed diagonally to Cape Defiance. The weather was still thick when we arrived, and we were glad in the cold evening to huddle closely around a fire of *nei-nei*—a mountain shrub which burns well even when freshly cut. The dismal outlook was not

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improved by the incessant cries of the kea, which from time to time flitted noiselessly out of the gloom and lit on the moraine beside our tent. When our spirits were lowest regarding the prospects for climbing on the morrow, suddenly the mists broke and in a short time had disappeared, disclosing in the full glory of the sunset's colouring the wonderful ice-fall of the Franz Josef above us and the great rock palisades which border the glacier in this part of its course. This gave us hope for the next day—a hope which was amply justified by a day of matchless brilliance in the upper mountains, though the mist still clung around the lower levels.

Making an early start long before dawn, we pursued a somewhat devious course up the valley of Harper Creek, which enters the Franz Josef just above Cape Defiance, avoiding the Unser Fritz waterfall at its mouth by a steep climb up a scree slope on the left bank. Above, the ascent to Tower Saddle was for the most part so easy that we were able to enjoy to the full the flower-decked Alpine meadow through which we passed, giving variety to the rugged rocks on either side along our route. Tower Saddle forms an inconspicuous notch in the lower part of the Kaiser Fritz ridge, and consequently overlooks the valleys on either side—the Franz Josef to the east and the Fritz to the west. From



THE UPPER PART OF THE BAIRD RIDGE AND THE SALISBURY SNOWFIELD.



THE GREAT ICE FALL OF THE FRANZ JOSEF.

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Tower Saddle our route led by snow-slope or *arête* over generally even grades to Mount Moltke, a fine peak of rock and snow which towers above the Baumann and Andermatten Glaciers. Here, while Earle and Graham pushed on towards Mount Roon, Clarke and I delayed to take photographs, and to examine the well-striated rocks in this vicinity. The view of peak and glacier and widespread snowfield is thrilling, as fine as any to be obtained in this part of the higher Alps. The whole chain can be seen from Ryan's Peak far to the south to the maze of mountains at the head of the big Wanganui to the north.

In carrying out our examination of the eastern side of the Franz Josef, we made our way along the regular route, which has been previously mentioned as being the one from the East to the West Coast, over Graham's Saddle. It follows the eastern bank of the Franz Josef as far as Rope Creek. The valley of the latter is typical of many which enter the more northerly portion of the glacier. The lower part, bordered by dense forest, stands in marked contrast to the ice of the Franz Josef. Higher up, the trees gradually diminish in height, and at the head of the creek the vegetation is scrubby and Alpine in character.

The ascent of the valley of Rope Creek is one long and tedious scramble over huge boulders. From its head, the very steep slopes

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which lead to the sharp crest of the Baird ridge above would be scarcely scalable were it not for the support given by the tough mountain flax which clings to the declivities.

Our first camp was at "The Water-holes," situated just above the valley of Rope Creek. The space available for our tent was so small and the slope descending on either side so steep that it seemed scarcely possible to move about without falling off the ridge towards the deep valley, which lay far beneath us on either side. Even the available ground was cramped by gigantic boulders, among which grew scrub so dense that it was possible to stand on the top of it, but not walk through it. Here, however, as the name of the place implies, a few tiny water-holes, the only ones along the lower part of the ridge, rendered the spot desirable as a camping-ground. During the night the noise from time to time of boulders rolling down the steep mountain slopes on either side gave us a sense of uneasiness lest we too should slip from our lofty perch and share a similar fate.

Above "The Water-holes" the route follows the knife-like crest of the Baird ridge. For the first mile and a half the descent is gradual, then a sharp rise of nearly a thousand feet occurs at the portion of our path known as the Goat-path, which filled me with fear from below.

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The slope is exceedingly steep, and being formed of huge fragments of schist loosely held together is the most dangerous part of the whole route. When actually mounting the dreaded rise the ascent looks fairly safe, but the least false move will dislodge a rock fragment and send it leaping thousands of feet down the precipices on either side. I had heard so much about the place that I was almost disappointed in the aspect of its terrors when they were at last presented to me. Still it was with a feeling of relief that we reached the lofty shelf above and found near Thelma Peak a convenient place for our camping-ground just below the level of perpetual snow. We arrived before noon, and had the remainder of the day to make examinations round about.

The evening was one of the finest I ever remember in the Alps, and the view around one of the most wonderful the world can give. As the sun set the pinnacles of the Great Ice-fall to the south of us sparkled with a hundred shades of yellow and gold, while the deep lower part of the valley of the glacier lay blue beneath the shade of the great cliffs on either side. It seemed but a moment later that the blue had deepened to purple, while the array of great peaks above, so lately roseate, darkened to saffron. The stillness at our lofty camp seemed absolute, save when a boulder, dislodged from some upper slope, scudded

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down the mountain-side, or an avalanche burst from some high-perched valley. So stimulating was the air that none of us seemed able to sleep, and though we huddled together with this intention, there was no repose for any of us.

Before two o'clock Clarke had boiled the kettle over a spirit-lamp, and soon after, invigorated by a warm cup of tea, we were on the march. It was freezing hard, but the air was so calm we scarcely felt the icy cold as we mounted from our camp over the slopes of Thelma Peak. Descending from the latter, we had a little difficulty in the fading moonlight in crossing the crevasses which mark the northern edge of the Salisbury snowfield, but once on this well-frozen surface the travelling was excellent. Reaching Newton Rock, the most prominent of a series of nunataks which form the subsidiary ridge dividing the Salisbury snowfield from the Geikie snowfield, we stopped for a meal. As we rested, the sun rose, displaying in brilliant hues this wonderful portion of the roof of New Zealand. Surrounded by snow wastes and by a maze of snow-clad crests, we might have fancied ourselves on the lonely icefields of Antarctica.

As we delayed from time to time to make examinations on the way, it was nearly noon when we reached the base of Graham's Saddle.

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The sun was now blazing hot, the glare on the ice terrific, and the travelling slushy and bad. It was even worse when, after a second meal, we had started the descent of the Kron Prinz Rudolf Glacier, towards the valley of the Tasman. On the way down Clarke pointed out the place where Low's accident had occurred two years before, and we marvelled how narrow was his escape when he lost control of himself in his glissade, and we shuddered to think what would have happened had he rolled but a few feet farther than the place where he landed in slipping, and dropped vertically over a precipice hundreds of feet high on to the broken ice of the ice-fall below. It was evening when, thoroughly tired out, but well satisfied with a successful crossing of the Alps, we reached the Malte Brun Hut on the eastern side of the Tasman.

Very little has been certainly or accurately ascertained as to the structure and main glacial characteristics of the heart of the Southern Alps. Some of the highest peaks are unscaled, and numerous lofty passes untraversed. Comparatively little is known about the wide extent of its snowfields, the movements of its glaciers, and the peculiarities of its marvellous scenery. There are few areas in New Zealand which present such a wide field for varied exploration.

CHAPTER VIII

THE GREAT DOUGLAS GLACIER

To the west of Mount Sefton, buried in the loftiest part of the Southern Alps, is situated the Douglas Glacier. The Twain River flowing from the glacier's frontal face, joins the Karangarua about five miles above the mouth of the Copland. The deep gorge along the lower part of the Twain renders access to the Douglas by its valley difficult, and a preferable route thither is by way of the Karangarua to its head, thence across Karangarua Pass to the M'Kerrow Glacier, and finally over Douglas Pass into Fitzgerald Flat, lying just below the glacier of the same name, and bordering the valley portion of the Douglas.

The M'Kerrow Glacier forms the head of the Landsborough River, which, flowing south-westerly almost at right angles to the course of the Copland, Karangarua, and Twain, enters the Haast River about twenty miles from the sea.

THE GREAT DOUGLAS GLACIER

The region between the Copland and the Landsborough forms one of the least explored and most inaccessible portions of the Alps. Few of its mighty peaks have been scaled, or the great snowfields, which lie among them and feed its numerous glaciers, visited. Its strange and varied bird-life—found alike among the luxuriant forest which clothes the lowland, as among the Alpine flora which brightens the summer upland—still lives here in plenty as unharmed by man as by the weasels and stoats which he has introduced.

It was a gloomy, threatening day, early in February, when at last, preparations completed, we were able to leave Scott's House, situated where the Great South Road crosses the Karangarua, and start for the *terra incognita*. Our object, during the few weeks available for the trip, was to explore the Upper Karangarua Valley, the vicinity of the Douglas Glacier, and the head-waters of the Landsborough, whence old prospectors had years before brought back tales of golden treasure.

Jack Clarke and Arthur Wilson were my companions for the whole of the journey, while two packers—one a Maori half-caste, whose name I do not remember, and Bob Mackintosh—were first to accompany us to the head of the Karangarua, and later to bring

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in provisions to a camp at the head of the Landsborough.

Wilson and the two packers had preceded us earlier in the day to set a base camp at Cassell's Flat—a broad grassy meadow dotted with groves of spreading beech and rata, and situated near the point where the Twain issues from its rocky cleft to join the Karangarua. From Scott's House to Cassell's Flat a rough forest trail which crosses from the north to the south bank just below the mouth of the Copland may easily be followed on foot, but, impeded by logs and fallen trees, scattered with huge boulders, and covered in places by mud-holes in which great roots of trees trap the unwary, it forms anything but a highway for horses. Still, our packers, anxious to diminish as far as possible the weight on their own backs, managed in some way to take our loads up to this point—some fifteen miles above Scott's—on horseback, and when Clarke and I arrived in the early evening, we found the camp well established, Arthur and the packers busy with preparations for dinner, and the horses earning a well-deserved repose after the arduous gymnastic efforts which were required of them in transporting our loads thither.

It had rained a little after leaving Scott's, but now the clouds had rolled away, revealing



THE MALTI BRUN HUT.



THE KARANGARUA NEAR CASSELL'S FLAT.

THE GREAT DOUGLAS GLACIER

the mountains, around and before us, in the full splendour of sunset. Everything seemed propitious for our trip into the unknown.

In the evening, preparatory to an early start next morning, we busied ourselves in arranging, as far as possible, our swags for the onward journey. From now on, everything was to be carried on our backs, and, thinking of the boulder-filled rivers, the densely overgrown river banks, and the deeply crevassed glaciers over which we must pass, a second cutting down of our impedimenta took place, preparatory to the real beginning of the journey of exploration.

Though our camp at Cassell's Flat had seemed a paradise in the roseate lights of sunset, after dark a light fog settled over us, bringing in its train such myriads of mosquitoes that our night's repose was completely ruined. Thus, it was rather a doleful procession of five sleepy men which in the early morning, heavily laden and with swollen faces and hands, departed from the camp we had reached so gaily the day before. As one of the packers expressed it, we felt like "after the night before, without the fun of it."

The upper part of the valley of the Karangarua is open and straight, and, running in a general east-and-west direction, is almost exactly parallel with the Douglas-Twain valley to the northward. At the most westerly point of this straight

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stretch, namely, about fifteen miles from the source, "The Cataracts," a series of broken waterfalls, form a notable feature. Below "The Cataracts" the Karangarua valley turns abruptly north for some ten miles, receiving in turn the Twain and the Copland rivers on the west. At the junction with the Copland the course of the river turns about west-north-west, in which direction it continues to the sea—a distance of about ten miles.

The source of the Karangarua is to be found in the many streams which descend abruptly from cliff glaciers perched on the rugged mountains around Karangarua Pass. From its source to the mouth of the Copland, the Karangarua consists of stretches in which the stream is flowing with an even though rapid grade, broken by other stretches, where the course is interrupted by strong rapids, or cataracts. Formerly a great glacier filled the valley of the Karangarua, flowing to the present sea-shore, and deploying on to the narrow coastal plain of Westland as a *piedmont* glacier. As this glacier retreated, successive terminal moraines formed at intervals across the U-shaped valley where the glacial retreat was temporarily retarded, and between these, gravel flats where the retreat of the glacier was steady and uniform. The pronounced rapids and falls occur where the old

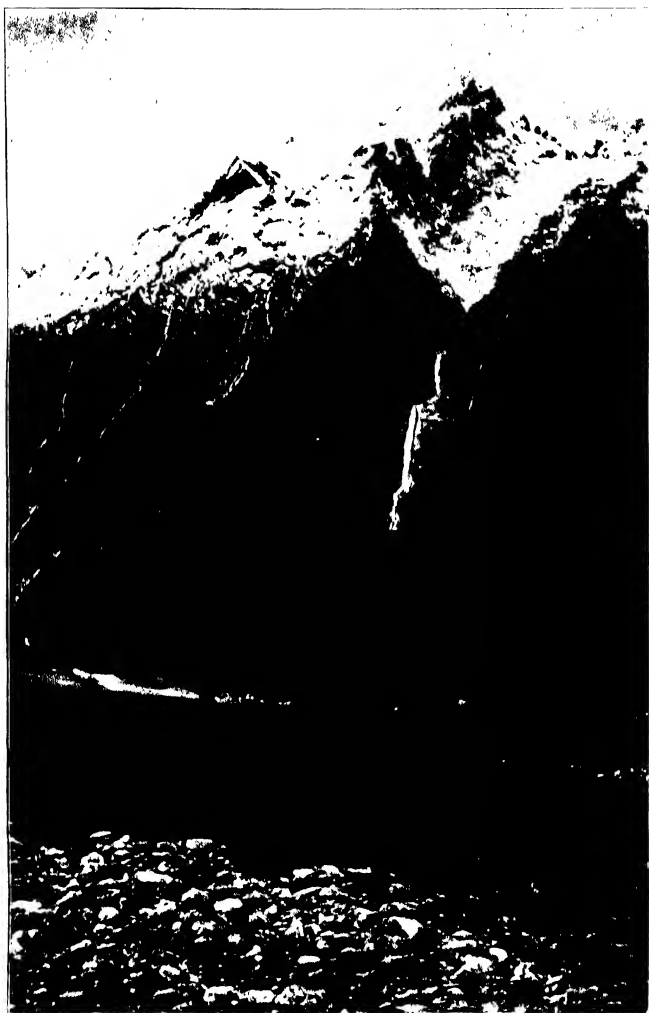


Photo A. P. H. Co.

HANGING VALLEY ON THE KARANGARUA.

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terminal moraines cross the valley, and are especially evident at "The Cataracts" above mentioned; in the flats the course of the river has a gentle gradient.

Below the mouth of the Copland, the Karangarua enters the narrow densely-forested coastal plain of Westland, and meanders with rapid current in many ever-changing channels, separated by grassy or bush-clad river flats, to the sea.

The scenery of the upper Karangarua is splendid. On either side, steep, even precipitous, glacially-smoothed rock slopes rise abruptly from the thick vegetation of the valley-floor to heights of perpetual snow. In many places waterfalls leap hundreds of feet from loftily-perched glaciers over precipices down into the forest beneath. The contrasts of the whole are wonderful—the blue water of the river, the forest of variegated green, the bright red rata flowers, the dark rock slopes, the green and blue much-broken ice of the cliff glaciers, and, ever behind, the white array of snow-clad mountains.

From Cassell's Flat we followed the south or left bank of the stream to a point above "The Cataracts." There was no track whatever, but here and there as we made our way through the thick undergrowth of the forest and in and out among the gigantic boulders which lay strewn

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over the surface, we came upon the rough blaze made by Douglas and Harper years before.¹ Not far above "The Cataracts," after clinging for half a mile or so to the very steep southern bank, we crossed by a good ford to the northern side, which we followed to a point just below the mouth of the Troyte, where we again traversed the river. Our route from "The Cataracts" lay almost entirely along the boulder-strewn river-bottom, leaving it only where rock precipices bordered the water, or where pronounced waterfalls occurred. Travelling was nowhere easy. We had frequently to wade the stream in the ice-cold water, to get to the best route along the bank, and the constant jumping from boulder to boulder with packs on our backs soon became tiresome. But the greatest difficulties occurred in the gorges or at the waterfalls, where we had to leave the river-bottom and scramble through the tangled vegetation that clung to the very steep slopes on either side of the river and formed a serious obstacle to advance.

At the mouth of the Troyte, a large cataract descending from Mount Fettes, we found a comfortable spot for our first night's camp, and several wekas almost immediately sallied forth from the

¹ See *Pioneer Work in the Alps of New Zealand*, p. 189, by A. P. Harper.



Photo, T. P. Harbo

A GORGE ON THE LOWER KARANGARUA RIVER.



Photo, T. P. Harbo

THE KARANGARUA NEAR THE MOUTH OF THE TWIN.

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bushes to provide the necessary *résistance* for our broth. It was a lovely evening, calm, warm, and with only a few fleecy clouds floating gently across the sharp profiles of the mountains which rose abruptly on every side. With the increase in altitude, we were safely above the mosquito line, and here there was nothing to hinder a sound and much-deserved repose after the day's fatigue.

Next morning the mountains were hidden and there was every evidence that the storm which the light clouds of the night before had portended was close at hand. Consequently I decided to send the packers back to Scott's at once, lest they should be held in the mountains by inability to ford the streams, and thus drain our very limited supply of provisions. The two departed in good spirits, Mackintosh promising to return in eight days' time, with a further store of food, while we continued our way, more heavily burdened, with the loads hitherto carried by the five.

Above the Troyte the valley of the Karangarua is everywhere filled with large boulders, which increase in size as the valley is ascended. Over these we had to scramble, as travel away from the river-bed was impossible owing to the impenetrability of the mountain scrub.

Christmas Flat, an inextensive gravelly stretch

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at the junction of several branches of the Karangarua, about two miles above the Troyte, gave us a brief respite to the wearisome crawling up and down over the boulders along the river-bank, or wading among them in the icy water. But here the rain, which had been threatening ever since leaving camp and for the last hour or so had been falling gently, came on in earnest and we were obliged to camp. We searched for nearly half an hour before we could find a flat space sufficiently large to place our little tent, and even then we had partly to build up the site chosen, so boulder-strewn were the banks away from the low ground near the river, which was liable to flooding if the storm continued.

All afternoon and the next day it poured. Damp and cold, we shivered in our tents, Wilson's miseries being increased by a bad attack of toothache, which our united efforts failed to alleviate.

On the morning of the third day the weather cleared and we set out gaily, hoping to make good progress after so much delay. Clarke and Wilson had divided their loads, as the ascent to Karangarua Pass was steep and they were to double back while I was making observations near the pass. We had hoped for easier travelling after leaving our camp, but instead, with increas-

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ing grade, the boulders became larger and more numerous and the travelling consequently was worse.

After a while, we tried the variety of making our way along the river bank away from the stream bed, but buffeting the tangled vegetation was even more wearisome than boulder scrambling, and our advance was for a time slower. As the altitude increased the scrub became scantier and travelling improved. We were not to enjoy the good weather conditions long that day. About 500 feet below the summit of the pass, a thick fog came on and we were obliged to stop once more. Clarke and Wilson, however, returned for their loads, while I busied myself preparing a spot for a camp, because it now became apparent the thick weather had come for the rest of the day.

The afternoon was wet and unpleasant, but not nearly so dark and wretched as the day which followed. The roar of avalanches around us heightened the gloomy feelings produced by the atmospheric conditions, and made us pessimistic for the morrow. However, in this we were to be agreeably disappointed. During the night the fogs dispersed, and the morning broke with a radiance we had not hitherto experienced on the trip. We were up betimes, and I was soon on the pass making investigations, while my

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companions were making a *cache* of the rock specimens so far collected, and the very few provisions which we could spare.

Karangarua Pass is a broad open saddle, nearly half a mile wide. At this time of the year the pass is quite free from snow and gay with flowers, but small streams of permanent ice descend to the edge of flat terraces bordering the pass proper, from Mount Townsend to the south, and Mount Howitt to the north.

From Karangarua Pass, a magnificent view, not only of the country through which we had come, but of the mountains to the eastward, could be seen. Just below us lay the M'Kerrow Glacier, its full sweep visible from its source in many hanging glaciers descending from the slopes of the Moorhouse range to the great cliff of ice, over one hundred feet in height, which marks its frontal face—its upper reaches a smooth broad open snowfield, its lower a much-crevassed surface, completely shrouded in rock debris, with prominent lateral moraines on either side.

We had a little difficulty in making our way down the steep slope of ice-coated scree and snow, which leads some 150 feet down from the northern side of Karangarua Pass to the M'Kerrow Glacier beneath, but it gave a variety of interest, which was lacking in the two-mile

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drag over the rapidly softening surface of the glacier between the base of the saddle and the gentle snow slope leading from the glacier to Douglas Pass. The latter forms the lowest notch in the long serrate ridge branching from the main divide, and separating the Fitzgerald Glacier from the M'Kerrow.

Douglas Pass was almost entirely snow-covered, but just below, bare rocky slopes of phyllite appeared, which a short distance lower down gave place to steep tussock declivities. Down these we slid and scrambled, clinging for protection to the wiry vegetation deeply rooted in the rocky clefts. At the bottom, we entered the broad flat gravel-filled basin, through which the stream flowing from the Fitzgerald Glacier ramifies, and known as Fitzgerald Flat. As vegetation is almost lacking here, it seems probable that the Fitzgerald stream, which flows beneath the moraines of Douglas Glacier, frequently changes its course from one side of the flat to the other.

At the north-western edge of the flat, among the high lateral moraines of the Douglas, we found, early in the afternoon, a comfortable sheltered spot for our camp. It was somewhat disappointing to glean from the evidence supplied by an old and rusty can that we were not pioneers on the Douglas Glacier, nor yet in the

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remote grassy patch in the very heart of the mountains where we had found a temporary home.

When our tiny tent had been pitched, Clarke and I left Wilson to collect some Alpine scrub from the very limited supply available, while we climbed to the top of the highest moraine to take some observations and to drink in to the full, while fine weather still lasted, the wonders of the Douglas Glacier. We had had our first glimpse of this remarkable feature on Douglas Pass, but not till we had reached this point were we able to study its structure in any detail, nor realise its extraordinary nature.

The glacier consists of two distinct parts—the *névé*, and the trunk or valley portion. Between lies a precipice of gigantic proportions, apparently over 3000 feet in height, exhibiting in the upper half an ice-fall of wonderful magnificence, and in its lower half an almost vertical face of rock. The *névé* lies at the base of Mount Sefton, one of the finest peaks of the Southern Alps, and extends westward along the Copland ridge, with a length and breadth of, very roughly, about three miles. For the most part the *névé* is smooth, but towards the edge of the ice-fall its surface is broken by great crevasses, and elsewhere near the crest of the Copland ridge and at the base of the western slope of Mount Sefton huge *bergschrunds*



THE DOUGLAS GLACIER MORAINES IN THE FOREGROUND, THE PRECIPICE IN THE BACKGROUND.



MOUNT SEFTON AND THE DOUGLAS GLACIER IN THE BACKGROUND, THE M'KERRROW GLACIER IN THE FOREGROUND.

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appear. The great precipice continues along almost the whole length of the *névé*.

The trunk part of the Douglas Glacier rises in a great rock-girt *cirque* at the easternmost end of the great precipice, continues along its base, and flows onward between steep rock walls, with a total length of about six miles.

Unlike many of the glaciers on the western side of the Southern Alps, the much-crevassed and irregular surface of the trunk portion of the Douglas Glacier is heavily clothed in moraine. This condition is due partly to the very friable nature of the interstratified phyllites and greywackes through which the two glaciers flow, and which here compose the *massif* of the Alps, and partly to the fact that the descent from the *cirques* at its head is more gradual, and the flow consequently slower, than in the case of the better-known West Coast glaciers, such as the Fox and the Franz Josef.

For an hour or more Clarke and I gazed on the stupendous panorama around us. The picture was awe-inspiring rather than beautiful, but it possessed a certain wild charm and savage fascination which at the time kept us rooted to the spot till the clouds crept up and hid the view, and which even now, though the details of the wonderful scene have long since faded, bring back to my memory the main features of that

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February evening nearly seven years ago. To the north-east, the great peaks of the Moorhouse range, Sefton, Eric, and Maunga Ma, formed in clear outline against the evening sky a gigantic saw-tooth. To the south, just behind us, splendid and stately, rose the rugged precipices of Mount Howitt, sprinkled at lower levels by a scant Alpine vegetation, and flecked above by numerous cliff glaciers, from which from time to time avalanches thundered.

Around us lay the moraines of the Douglas Glacier—the older a brilliant Alpine flower-garden, the newer dark, gloomy, and bare. To the west, down the broad straight valley, a ribbon of blue, dimly visible, showed the course of the Twain River, in a forest of every shade of green, brightened by the blood-red flowers of the rata. The view in front, however, dwarfed every other aspect. There was to be seen the spacious *névé*, the gigantic precipice of séraced ice-fall and vertical rock-face, the seemingly innumerable waterfalls issuing from beneath the ice and splashing on stacks of boulders hundreds of feet below. The roar of the avalanches constantly descending formed an unending cannonade, the booming of one having scarcely ceased when that of another had commenced. The sounds echoed and re-echoed across that weird strange valley with

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such terrible intensity that at times, even at a mile away, the noise seemed deafening when at its height. No other sound was heard, save occasionally the strident shriek of the kea as it fluttered down beside us on the ice, or the far-away call of the weka from some patch of mountain scrub down the valley.

Though the next morning was cloudy and lowering, we left our camp early to explore the lower part of the glacier. Our course led us diagonally across the much-broken ice to the northern side, where we found better walking along a lateral moraine, which brought us to a prominent point above the glacier close to the frontal face. Near the latter walking along the glacier was impossible, not so much on account of the irregular surface of the glacier itself, as because of the mountainous piles of ice, which a recent avalanche had pitched into the valley from the cliffs to the north, and had even piled hundreds of feet up the rocky slope on its southern side over half a mile away. Here, stained in places a dull green, by the comminuted serpentine which it had brought from its former resting-place, the dirty ice showed in places a marked contrast to the clean white ice of the small cliff glaciers in the locality.

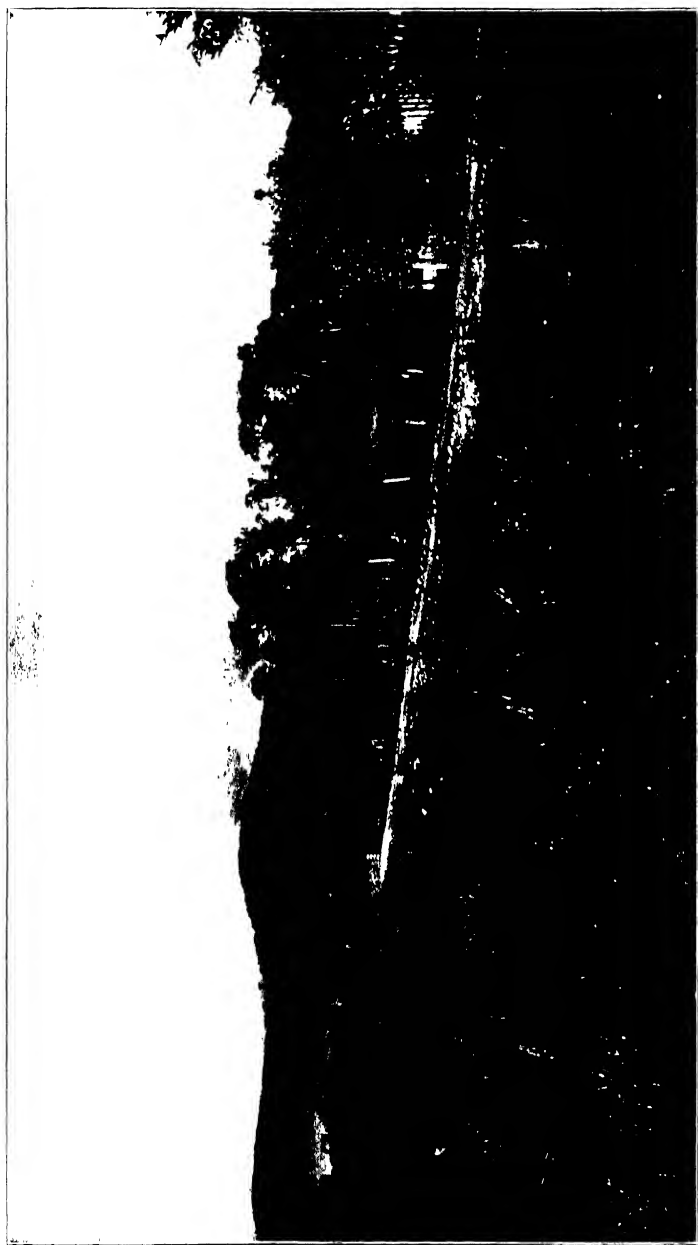
At the frontal face of the glacier, a small pond of muddy water, dotted with islands of ice

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and bordered by moraines, forms the starting-point of the Twain River. From our point of vantage above the frontal face we got a good view of the deep valley through which it flows, to the point where, just below the prominent *roche moutonnée* known as Conical Hill, it merges with that of the Karangarua. The valley—open, U-shaped, and remarkably straight—is filled with the glacial debris left by the ancient Douglas Glacier in which the river has cut for itself a meandering channel, bordered in places on the north side by terraces, and on the south by the rock shelf of the ancient glacier floor.

About three-quarters of a mile below the Douglas Glacier, the Horace-Walker Glacier joins the Douglas on the north. Its course is disposed in a remarkable curve almost at right angles to the valley of the Twain. The moraines on its surface, the crescentic shapes of its crevasses and the spotless snowfields at its head are so perfect that they remind one of a text-book of physiography.

Early in the afternoon it had begun to rain, but by the time we had reached our camp the clouds had cleared away sufficiently to give us a glimpse of the majestic peak of Sefton, and of the broad upper snowfields of the Douglas. This improvement in the weather, despite a falling barometer, made us hopeful for the morrow,



A WETLAND ROAD.

THE GREAT DOUGLAS GLACIER

and we laid our plans for the ascent, if possible, of Mount Sefton, on this the last day we felt we could spare for the neighbourhood. Alas for our hopes, the next morning showed a still lower barometer, and a dense fog hanging everywhere low over the hills. As there seemed no chance of its clearing we decided to shift camp to our next stopping-place on the Landsborough, after we had made some examinations of the rocks and of the quartz veins which cut them on the north-eastern side of Fitzgerald Flat.

On a terrace a hundred feet or more above the water, on the east bank of the Landsborough, we found a convenient place for our camp, with plenty of mountain scrub near at hand for an occasional smoky fire.

A howling easterly gale ushered in our first morning in our new abode, which somewhat later brought on a heavy cold rain. By afternoon, however, it had cleared somewhat, and I set out with Wilson to explore the river, while Clarke took advantage of the seemingly improved weather conditions to climb the mountains to the eastward, in order to pick out the best route to the Mueller Glacier, by which we hoped to make our way in a day or two to "The Hermitage," on the eastern side of the Alps.

Unlike the Karangarua and its several main

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tributaries, the Landsborough River runs parallel, or nearly so, with the stratification of the rocks of the area, and is consequently in the main a strike valley. As its course is also almost parallel with the island divide, it is bordered to the eastward by lofty peaks of imposing grandeur, while a fine ridge of mountains, surmounted by the serrate crest of Mount Fettes, flanks it on its north-western side.

The several glaciers which we examined on the eastern side of the Landsborough resemble the M'Kerrow on a small scale. They either rise in a number of tributary glaciers with much broken ice, or they are formed by the reconstruction of the ice descending in avalanches from cliff glaciers. Their lower courses are much shrouded in moraine. None of the glaciers entering the Landsborough valley on the eastern side join the main river directly, but are connected with it by streams of varying lengths. The prominent lateral moraines bordering these minor glaciers and the pronounced tussock-covered terraces along the main river are characteristic features of the upper Landsborough.

Unlike the small glaciers on the eastern side of the Landsborough, the Fettes Glacier comes directly to the edge of the main stream, which it joins in a great wall of ice, nearly 100 feet high. The Fettes has a steep and

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sudden descent from small *névé* fields lying around the mountains of the same name. Thus its movement is rapid and its surface consequently almost free from moraine. The Fettes Glacier forms one of the finest features along the upper Landsborough. Behind rises the sharp snow-covered crest of Mount Fettes, and on either side of the much-broken ice, near the frontal face, is a forest of variegated green.

The whole valley of the Landsborough is somewhat difficult of investigation, owing to the fact that the main stream is unfordable for practically its entire course, while many of the numerous tributary streams entering from the glaciers on either side can be traversed only with considerable danger. Moreover, the travelling along the river is everywhere arduous, owing to the almost entire absence of the grassy flats which, in most of the valleys of this locality, vary the monotony of the long stretches of boulder bank over which one has to scramble in going along the stream.

It was nearly dark when Wilson and I returned to camp, thoroughly tired after our long afternoon's wanderings. Clarke, after a disappointing trip, came in soon afterwards. He had ascended a neighbouring peak to a point well above the snow-line, but the fog had not lifted, even for a moment, to give him a glimpse

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of the Alpine divide and enable him to spy out the best course for us to take when we crossed the mountains.

The date on which we expected Bob Mackintosh with our relay of provisions had now arrived, and we were disappointed that he did not appear. Our stores were growing very low, and all were looking forward anxiously to larger rations.

The next day Clarke and I made an examination of a glacier close to the camp, which we thought was the Spence, and by which we thought our route across the Alps must lie, though as the weather still remained thick, we could not be certain on this point. As we were returning in the heavy rain, which after a lapse of a few hours came on again early in the afternoon, we espied smoke rising on the other side of the Landsborough. This we realised must be a signal fire from our overdue packers. Clarke left at once to fetch them, but he missed them on the way, and they, having set out in search of our camp, arrived first, after making a difficult ford of the Landsborough just below the frontal face.

The two—Bob Mackintosh and Bob Gibbs—had a doleful tale to unfold. In fording the M'Kerrow, both had been swept from their feet, and all perishable provisions had been

THE GREAT DOUGLAS GLACIER

destroyed. As the supplies which they were bringing were chiefly of this nature, they rescued little from the accident save a tin or two of sardines, and such-like material.

The knowledge that our supplies were so low was not at first very disconcerting information. We had altogether at least two full days' rations for three men available, and these, as one of the men put it, could surely be made to do for five men for a similar period if one and all played to some extent the game of "shut-eye." At a pinch, all could get along fairly comfortably for three days. Thus our supply seemed sufficient, as our plan was for Clarke and Wilson to accompany me to "The Hermitage," which, with good luck, would require only a day's food from our camp, leaving ample rations for the packers to return to Scott's—a journey which with somewhat forced marches could be made in two days. We all remembered, when the plans were being discussed, some chunks of hard bread we had flung away at Cassell's Flat, and a tin of British Columbia salmon which we had left behind there as the result of the unfavourable criticism given by one of the party before we had left as to the methods of tinning the fish. So it seemed to us all would be well if the weather would only improve, and allow us to cross the Alps. As if to give the lie to our

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hopes, it poured all night. By morning, however, it had cleared somewhat, and Wilson and I set out to further explore the Landsborough, while Clarke and Bob Gibbs departed to climb Mount Burns, an adjoining peak, in order, if possible, to make sure of the best route into Canterbury.

Early in the afternoon we were forced to return to camp by the rain, which had returned with renewed vigour. On our arrival we found Clarke and Gibbs already there. Though they had been able to make the long slope up the mountain and thought they had reached the crest of the Alps, the weather was so thick they had not succeeded in finding a route down the precipices which apparently everywhere marked the Canterbury side. Almost perishing with the cold, they had been obliged to retreat from the higher altitudes when the storm came on.

After all the fog and rain which we had had during the last week, we could scarcely believe it possible that there remained so much moisture available as was hurled down upon us the following day. The morning was ushered in with a howling north-westerly, and with such heavy rain that not even the help of a large portion of our small supply of alcohol could induce the mountain scrub to light and give us a cheering cup of tea. The rain, however, did

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not beat through our snug little tent, and there we remained for the day, buried in our blankets.

We were now on the barest rations—a few handfuls of bread and biscuit crumbs in the morning, and the same in the evening, cooked in bacon grease, was promised by Clarke, if he could manage to make a fire. This, as the rain abated, and was followed by fog, he succeeded in doing, and we were joined by Mackintosh and his mate. They had remained in bed all day in their camp beneath a cliff close by, to keep themselves dry and, very considerably, to save our small store of grub. We were trying to hold back two meals for our hard trip across the Alps, and the same amount for the packers, for the longer, if less arduous trip to Scott's, but we did not know how we were going to hang on to these if the weather continued. We were now securely imprisoned by its furies in the mountains. A lofty snow-covered range lay between us and "The Hermitage," while the flooded and now quite unfordable Karangarua was the only route to Scott's. It is possible during very low water and in dry weather (if indeed such ever comes to Westland!) to make one's way down the rock-filled valley of the Landsborough, fording its numerous streams, and at one or two places crossing the main river to the Valley of the Haast, and thence to the Great South Road,

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but that route was now if anything more impossible than the one via the Karangarua. The Landsborough even at its very head was a raging torrent which not even the strongest could ford.

When he had first reached our camp on the Landsborough, some one, struck by the number of keas which flitted about and lighted cheekily on the rocks beside our tent, had remarked that there was little danger of starving where these parrots were so plentiful. Now, when we really needed the birds, not one of them was to be seen. We did hear one that hungry evening in the fog which settled down after the heavy rain ceased, but Wilson and the two packers who set out in pursuit returned empty-handed, declaring that the bird knew from the hunger in their eyes and their gaunt appearance that it was dangerous to be near, and took to flight at the first sight of them.

The next morning was even worse. A terrific thunderstorm inaugurated the day's atmospheric proceedings, with a deluge of rain, then came hail and finally snow. There was almost no food that day. We divided the very small supply which we thought we could spare into five portions, at the two very scant meals which we were allowed. All were wonderfully cheery under the circumstances and splendidly unselfish in the division of the food, pressing the lion's



"SWAGGING" ON THE WEST COAST.

THE GREAT DOUGLAS GLACIER

share on each occasion on me. As a matter of fact, it was not particularly attractive food—the biscuit and bread-crumbs had been blown by the blue-bottles, so common even at high altitudes in the Alps, and this proteid addition, though possibly strengthening, was not appetising.

After our second meal, notwithstanding Clarke's utmost economy during the last three or four days, once we had realised that our expected food-supply with the packers had failed, there remained only the grub reserved for the outward march. The outlook indeed was doleful. All were hungry and feeling the effects of the small rations of poor food. Within our tent everything was wet, soggy, and cold; without, snow lay thickly enveloping the rocks which we had built up round the camp as a sort of shelter, and even covering the tent itself. By evening, a dense, dark fog lay low over the valley, hiding from view everything more than a few feet from our camp. There seemed no reason to be cheerful, but still we all were, for our spirits had steadily risen all afternoon with a similar rise in the barometer, which seemed to predict fine weather for the following day and a chance to escape.

Clarke was up at intervals all night to study the weather, and by midnight was so elated over the prospects that he awoke us to announce that

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the fog had cleared away and the stars were visible. An hour or so afterwards all were awake, and long before dawn, in a cloudless sky and freezing temperature, Clarke, Wilson, and I were off for "The Hermitage," and the other two were ready to leave for their trip to Scott's.

When Clarke and I had been examining the glacier near our camp, which we supposed to be the Spence, we had chosen a route to be followed in the event of the mists not clearing away before we left, and showing us a preferable path across the Alps. This was now the path we took. For the first mile or so after leaving the Landsborough, we followed, in the rapidly growing light, the old lateral moraine of the glacier. Then, as the sun rose, we descended for a few hundred yards on to the glacier itself, making our way slowly and warily over the much-crevassed surface to the base of the ice-fall. The view around was dazzlingly beautiful—fresh snow everywhere sparkling in the sunlight, with scarcely a rock showing from beneath the white mantle.

The ice-fall of the glacier was divided in two by a *heisse Platte*. The more southerly channel seemed to offer the more gradual route to the *névé* above, but was rendered difficult, so it seemed, from below by tributary ice-falls entering the main stream at the top. So after some

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indecision we chose the more northerly channel. The ice-fall altogether was probably less than a thousand feet in height, and under ordinary circumstances would, I fancy, have presented no very great difficulty, but Clarke was the only really skilful climber of the three of us, and our ascent, consequently, was tedious and slow. The new snow covering the glazed and much-broken ice necessitated a wary look-out. Disappointment in the weather added to our trials, because before we were half-way up the ice-fall it had begun to snow, and by the time we had reached the *névé* a veritable blizzard was raging. We steered our way up the gentle slope of the snowfield according to the direction in which we thought our course lay, and after a while cut a few hundreds of feet up a steep snow slope, thinking we were approaching the pass into Canterbury, but as the slope lengthened and grew steeper, we knew we must be on one of the peaks which border the pass on either side.

We retreated to the gentle slope below, and, losing ourselves in the storm, floundered about for nearly an hour. At last, after traversing several *bergschrunds*, which, gaping savagely, we unexpectedly came upon in the storm, we reached the pass. Here, to our disappointment, we beheld far beneath us through thickly falling snow, not the smooth upper snowfields of the

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Mueller Glacier, but, below ice-falls and rock precipices, a wild valley in which a mountain torrent roared. Visions of a quick trip down the well-known Mueller, of a warm welcome at "The Hermitage," of copious meals at the hands of its kindly host, and of the eagerly expected letters which had piled up in the weeks we had been in the mountains, fled in a minute, as it dawned upon us that the stream far below us was one of the head-waters of the Dobson. It was forty miles down its valley before the nearest hut could be reached, and even that was but seldom inhabited.

It was quite clear to us what we had done. Owing to the fact that we had never had, till that very morning, a clear view of the Alps, and had never been able to obtain an idea of our proper position, we had mistaken the Leblanc Glacier for the Spence, and had thus been landed a mile or so farther south on the crest of the Alps than we should have been. What a distance that short length made late on a very stormy afternoon with only a tin of sardines and a few biscuits remaining for three hungry men !

We debated for a few moments as to what we should do. Clarke had travelled far and wide on the Canterbury side of the Alps, and knew every valley well. I was keen to try the Dobson, though, since for lightness' sake we had

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sent our tent and blankets back with Mackintosh, it meant a chilly night in the open. Clarke too would under ordinary circumstances have chosen that way, but he knew that it was foolish, in our tired, hungry state and in such weather, to attempt an unknown but certainly difficult descent into a valley which might perhaps lead us only to an empty shepherd's hut.

So, after all our trials and expectations, there was nothing for us to do, even at that late hour in the day, but to return the way we had come, down the Leblanc Glacier, up the Landsborough River to the M'Kerrow Glacier, over Karangarua Pass, and down the Karangarua River, to Scott's House. Near the crest of the pass we ate a snack of biscuits, keeping the larger portion, with the sardines, till we had safely reached the river valley below. Though we lost our footprints in places in descending the snow-field, the gradual descent led us without their guidance to the crest of the ice-fall, and eventually we found the place where we had ascended.

All went well until we were about half-way down, when suddenly Wilson, who was ahead, slipped, lost control, and sped down the slope. I, who was next on the rope, immediately followed suit. At the moment Clarke, standing on the crest of a *sérac*, was well braced. Quick

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as a flash, he had made himself more secure, so when the rope tautened he was able to hold us both until we could regain a foothold. It was fortunate for us Clarke was strong, skilful, and well placed, for a few feet below where Wilson's descent was arrested the mouth of a great *bergschrund* yawned, ready to engulf us all if he had slipped farther.

We reached the bottom of the ice-fall without further mishap, and in now clearing weather continued our way backward. I shall not dwell upon the wearisome slipping and sliding over the ice of the M'Kerrow which followed, or the hours of incessant scrambling up and down over the huge boulders which fill the valley of the upper Karangarua ; suffice it to say that with hard travelling late in the night we reached the camp of our two packers, who had parted from us in the early morning. We made an early start together next day, as it was evident that the better weather conditions of the last ten hours were not to endure, and we realised it was best to take advantage of the temporarily lower water on the Karangarua, to get down the stream as quickly as possible. By noon it was raining hard, and by the time we had reached Cassell's Flat, a few hours later, the water was already so high that we knew it was impossible to go any farther.

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Here we found the tin of salmon we had so haughtily discarded a few weeks before, and a few slices of sodden bread left by the packers at the time of their last visit. How we relished the stew made from these derelicts ! We were too tired to feel, in the early part of the night, the mosquitoes which had proved such a trial on our last visit to Cassell's Flat, but they got us up before dawn, and on this occasion we had reason to bless them, for there, sitting on a bough close to our tent, was a large pigeon. In not more than ten minutes, that unfortunate bird had been killed, dressed, fried, and eaten, and, thus reinforced, we set out once more for Scott's.

The weather had again cleared, and by the time we had reached the ford to the north bank of the Karangarua, the water seemed low enough to make the crossing. The privations of the last few days had, however, told on us more than we had expected, and as, waist deep, and close together in line, we made our way across that icy torrent, it seemed scarcely possible we could reach the farther shore. At times I lost my footing, but fortunately on each occasion Clarke was able to stand the strain. When we had safely gained the northern side, we all lay in the sun for half an hour or so to recuperate from our efforts.

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When we arrived at Scott's House there were great rejoicings that we were safe after a siege of bad weather, unusual for even this rainy part of New Zealand. Here I vowed that nothing would induce me to go back into the mountains again that year, but a day's rest with plenty of food did wonders in making me change my mind. It needed but the radiant morning which dawned the day following our arrival at Scott's to make us forget the miseries so recently endured, and to lure us once more into the mountains, now so clear and resplendent.

By noon we were ready to make for "The Hermitage" by way of the Copland and Fitzgerald's Pass. We camped with some track-makers near Architect Creek, about nine miles above Scott's, and were off before daylight next morning for "The Hermitage," which we reached just after midnight after a long, steady, tiring tramp.

In our trip up the Copland we were again unfortunate in the weather. The mountains seemed determined not to let us go without one more good drenching. For the day's misery, however, we were recompensed by the view which unexpectedly greeted us, when just at sunset we rose out of the rain and fog of Westland and stood upon the summit of Fitzgerald's Pass looking into Canterbury. To the westward all



* SUNSET . . . UPON THE SUMMIT OF FITZGERALD PASS, LOOKING INTO CANYONCREEK *

THE GREAT DOUGLAS GLACIER

was hidden, but to the eastward only scattered clouds filled the valleys and rolled out on to the lowland. Far down the Hooker we could see the distant yellow fields of the Tasman valley, while near at hand rose a sea of mountains. Peerless among them all stood Mount Cook, its splendid crest roseate, its lower slopes purpling in the fading light.

Many climbers who have done good work in the Southern Alps have not been mentioned in previous pages, because their explorations were carried out mainly in other portions of the Alps than those described in my narrative. In this connection a number of names are prominent : George Graham, who with Jack Clarke and Tom Fyfe made the first ascent of Mount Cook on Christmas Day 1894 ; the late H. Sillem, whose tragic death in the Swiss Alps a few years ago filled his many friends with sadness ; C. E. Mannering, one of the pioneers of exploration in the Southern Alps ; Claud Macdonald, the well-known Australian climber ; Bernard Head, the conqueror of Aspiring ; J. R. Dennistoun, who, with a friend, explored the Upper Wanganui ; Miss Du Faur, the first lady to ascend Mount Cook ; and, most notable of all, Malcolm Ross, whose excellent descriptions of his several successful expeditions have done much to make mountain-climbing in New Zealand popular.

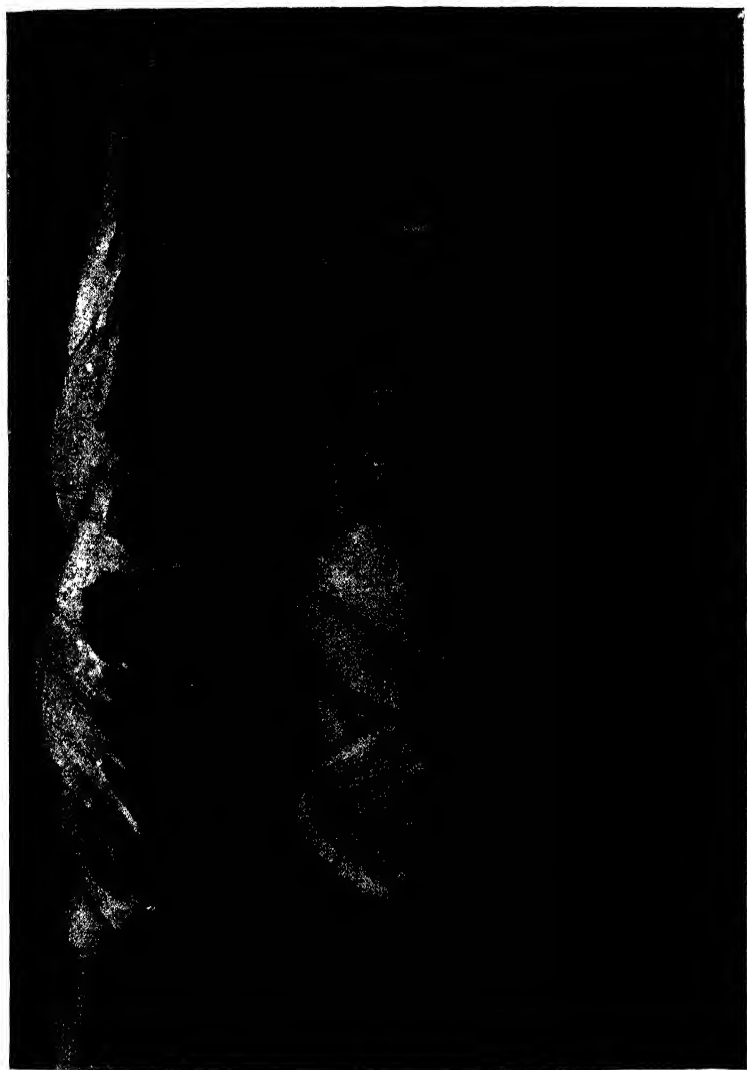
CHAPTER IX

THE GEOGRAPHY AND CLIMATE OF NEW ZEALAND

PERHAPS no other country in the world can marshal in so small a space such a marvellous array of physical features as the islands of New Zealand. The whole area of the young British Dominion amounts to only 104,751 square miles—an area less than that of the British Isles. Yet here the traveller may see thermal phenomena as wonderful as those of the Yellowstone in America ; may visit great steep-walled, deep-watered sounds, bordered by a vegetation of tropical luxuriance, and resembling in mode of origin the famed fiords of Scandinavia ; and may climb great snow-clad peaks or explore huge snowfields, rivalling those of the Alps, the Caucasus, or the Himalayas.¹

New Zealand consists chiefly of two islands of almost equal size and known as the North

¹ "The Physical Features of New Zealand," in the *Bulletin of the Geographical Society of Philadelphia*, January 1910, by J. M. Bell.



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and the South or Middle Island. Just south of the latter is Stewart Island, which is much smaller than either of the others. A number of islands lying at varying distances off the coast are under the Government of New Zealand. Chief among the latter is the beautiful group known as the Cook Islands, which lie just within the tropics to the north-east of the North Island.

New Zealand is divided into nine land districts. Of these, Auckland, Taranaki, Hawke's Bay, and Wellington are in the North Island, and Marlborough, Nelson, Canterbury, Westland, and Southland in the South Island.

The population of New Zealand and its dependencies at the last census amounted to 1,008,468. The populations of the four principal towns, Auckland, Wellington, Christchurch, and Dunedin at the same time were 102,676, 70,729, 80,193, and 64,237 respectively, reckoned with their suburbs. Auckland, the metropolis of the country, is beautifully situated amid volcanic hills, on the spacious harbour of Waitemata. Wellington, the capital of the Dominion, lies on a fine landlocked harbour, but its area of expansion is limited by the hilly nature of the adjoining country. Christchurch lies some miles from the open sea, its harbour being Lyttelton, about seven miles distant.

THE WILDS OF MAORILAND

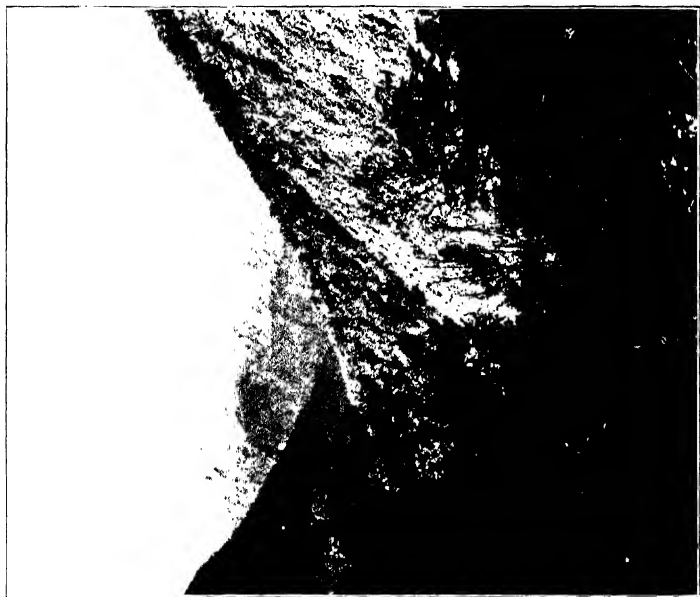
Christchurch, the chief town of one of the richest agricultural and pastoral districts in the British Empire, is regularly laid out and well built. It is the centre of an old English colony, while Dunedin, the most southerly of the large New Zealand towns, is essentially a Scottish community. Dunedin is situated on the tidal water of Otago Harbour, but large ships stop at Port Chalmers, which is some miles nearer the open sea. Palmerston and Wanganui near the west coast of the North Island, and Napier and Gisborne near the east coast, are all thriving towns of over 10,000 people. Nelson, the capital of the Nelson district, and Invercargill, the chief town in the Southland District, are both important in their respective communities.

New Zealand is essentially a pastoral and dairying country, as every one who has eaten its mutton and its peerless butter knows, but the mining industry is also important. Coal is the chief mineral product; gold and silver come next, and after them kauri-gum. The development of its wonderful water power should make the New Zealand of the future a great manufacturing country, to supply a coming large agricultural population in Australia.

New Zealand is probably as remarkable from a geological as from a physiographical standpoint. The variety of rocks, the range of geological



HAWK'S CRAG, BUTLER GORGE.



MOUNT BALLOON, NEAR THE TRACK TO MILFORD SOUND.
Post, N.Z. Times Press

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periods represented in the strata, and the irregularity and intricacy of their structure, present many problems of interest, and give to the geologist ample scope for an investigation of those features which so profoundly influence the topography of the country.

In the South Island the Southern Alps and the several parallel and subsidiary ranges, which branch therefrom in almost every direction, consist mainly of much altered and folded Palæozoic and Early Mesozoic sediments, while the greater part of the lower-lying land bordering these ridges towards the coasts is overlain by Tertiary or even more recent strata. The sedimentary rocks are frequently much shattered, and are consequently readily denuded by natural agencies.

Igneous rocks, though presenting a great variety of petrographical forms, compose relatively only a small portion of the South Island. Volcanics form almost the whole of Banks Peninsula near Christchurch and are prominent near the city of Dunedin, whilst plutonics are represented in the rugged granite buttress forming the south-western corner of the Island and in the ranges stretching northward therefrom parallel to the western seaboard.

The oldest rocks of the North Island are easily decomposed Triassic and Jurassic strata.

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These constitute the main *massif* of the mountain chains. Overlying these, Tertiary beds of varying age form the extensive Wanganui Coastal Plain on the west side of the island as well as smaller areas of generally low-lying country widely spread around the rest of the coast.

In much of the central and northern part of the North Island, volcanic rocks—tufa and lava both of Tertiary and of Pleistocene age—overlie the sedimentaries and form in many places a hard and resistant covering.

New Zealand bears in many respects a strong physiographic resemblance to Japan and to Italy.

Though for the most part mountainous, the islands possess several relatively considerable stretches of flat land, collectively inextensive, however, as compared with the widespread hilly or more elevated country.

The backbone of the South Island is formed by the Southern Alps. In the north-eastern part of the same island two prominent ranges, known respectively as the Seaward and Landward Kaikouras, run nearly parallel to the northern continuation of the Southern Alps—here known as the Spencer and St. Arnaud Mountains. In the north-western part of the South Island several poorly defined ranges, known under many names, are subsidiary to the principal chain of the Alps.



Prof. V. Z. Tschudi

A GREAT SHOT FROM WAIMANGU GEYSER.



Prof. V. Z. Tschudi

MOUNT NGAURUHOE IN WINTER.

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In the North Island mountainous country extends continuously from Wellington to the East Cape. The mountain ranges within it are known under various names. The Rimutakas lies towards the south, the Tararuas and the Ruahines occupy the interior ; the Huiarau and the Raukumaras are towards the north. Parallel to the Tararua and the Ruahine Mountains on the east side are the Maungarahi Mountains and the Puketoi Hills, and on the other side the Kaimanawas. Other low ranges of mountains form the backbones of the Auckland and Hauraki Peninsulas, the latter range extending southward therefrom into the heart of the island. Most of these mountain ranges of the North Island are covered with dense forests.

In the North Island the greatest altitudes are not found among the ranges of sedimentary strata just enumerated, but in volcanic peaks, youthful in age as compared with the old and well-dissected mountains around them.

The beautiful symmetrical cone of Mount Egmont rises from the flat land of the Wanganui Coastal Plain to a height of 8250 feet, while Mounts Ruapehu (9175 feet) and Ngauruhoe (7515 feet) are surrounded by extensive lava and tufa plains, which form the plateau of the Taupo Volcanic Zone.

The highest land in New Zealand is formed

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by the lofty snow-clad crests in the heart of the Alps. The culminating point is Mount Cook, a splendid double-crested monolith which attains a height of 12,349 feet. Around it rise in a veritable *mer des montagnes*, to heights of over 10,000 feet, many other stately peaks lying in spacious fields of *névé*, from which emanate many great glaciers.

The mountains composed of Mesozoic or earlier rocks in both islands, when viewed from any particular point, show in many places an apparently even sky-line, independent of the structure of the strata of which they are composed. The crests seem to be the remnants of an old elevated flat, or relatively flat, surface, representing a former base-level of erosion, or peneplain. Naturally, since the mountains in one part of the country show marked variations in altitude as compared with those in another part, it follows that this seemingly uniform crest-line is not representative of the country as a whole, but only of the area seen from a particular view-point.

The widespread Miocene rocks, faulted and tilted but not much folded, which occur in many parts of New Zealand and range in altitudes from sea-level to over 4000 feet, show that much of the surface of New Zealand was during that geological period depressed beneath the sea. Chiefly at the same time the peneplain

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was formed as a result of the prolonged denudation of the surface of highly-folded Palæozoic and Mesozoic rocks, which had probably risen to mountainous heights.

The principal mountain ranges as we know them to-day are the product mainly of differential movements, deformation, faulting, and tilting, which succeeded Miocene times and elevated the old base-levelled surface to widely varying heights, throughout the length of the country but apparently uniform when viewed from a particular aspect.

Countless centuries of erosive activity have trenched with valleys the various uplifted and tilted blocks and thus greatly altered their original surface. In the Alps the dissection has been greatest where the old surface was most elevated, since here the precipitation was at the maximum and the country more exposed to denudation owing to altitude and changes of temperature. The maze of ridges of rugged topography, the serrate crests, and the *aiguille*-shaped peaks here scarcely show the old peneplain surface. Elsewhere, however, where not raised to such high levels, and where protected by a relatively drier climate from excessive denudation, the surface is less changed. Thus in the South Island one sees isolated remnants of this ancient plain in the tussock-clad Goulard

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and Gunner downs of the Nelson Province, and in the broader expanse of the arid Central Otago Tableland, above which less extensive remnants rise as well-demarcated block-mountains.

In the North Island the old base-level is almost completely obliterated by numerous changes due to denudation or varied tectonic events which have occurred during or subsequent to the uplift of the land after Miocene times. Various small blocks of the old plain, each with its uniform or nearly uniform crest-line, are seen around the capital city, Wellington,¹ and again in the far north near the Bay of Islands.²

In the central and southern portions of the South Island the mountains, mainly owing to glaciation, exhibit a rugged topography. Precipices are common, and solid rock shows in many places, even on the more gradually sloping hill-sides. Scree slopes are general and are especially conspicuous on the eastern side of the Alps, where in many places they extend as widespread talus fans far beyond the actual base of the mountain which they border.

At the northern part of the South Island and

¹ "Physiography of Wellington Harbour," *Transactions of the New Zealand Institute*, 1909, by J. M. Bell.

² *Geology of Whangaroa Subdivision*, Bulletin No. 8, New Zealand Geological Survey, by J. M. Bell and E. de C. Clarke.



Photo. U. S. Navy, Auckland

THE VOLCANO OF WHITE ISLAND, BAY OF PLENTY.



Photo. N. C. Forest Dept.

GLIMPSE OF LAKE MANAPOURI, FROM THE ROAD TO MILFORD SOUND.

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in the North Island the topography is subdued as compared with that farther south ; the hills show generally an absence of rock faces and a dense vegetation growing on the soil-covered slopes.

The most extensive area of flat-lying land in the South Island is formed by the Canterbury Plains, which, free from bush and with a good soil, first became the home of white settlers between sixty and seventy years ago. Now the plains are thickly dotted with towns, villages, and well-tilled farms, whilst sheep-runs extend to the foot-hills and even up the Alpine valleys.

The Canterbury Plains gradually rise from sea-level to a height of about 1000 feet at their inner margin. Their surface is composed of gravel and finer debris brought down by the numerous large streams which flow from the perennial Alpine snows. This material is superimposed upon a basement of Tertiary strata with a gradual seaward tilt from the base of the mountains. Thus it is evident that the Canterbury Plains are the result of the coalescence of numerous alluvial fans on the top of a coastal plain.

The hills at the eastern edge of the Canterbury Plains forming Banks Peninsula are, as already remarked, of volcanic origin, and are younger than the Alps to the west.

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At the western base of the Southern Alps lies the narrow Westland lowland stretching along a wild harbourless coast for upwards of 100 miles. Like the Canterbury Plains, the Westland lowland is in great part formed of detrital material derived from the wearing-down of the Southern Alps. Its surface is covered partly by fluviatile deposits, and partly by widespread moraines, the product of the ancient *piedmont* glaciers that long ago shrouded the lowlands and extended into the ocean itself. On account of the irregular relief presented by the glacial material, and because of the uplift and dissection of the northern portions, the Westland lowland can scarcely be correctly called a plain. With its dense forest, humid climate, and relatively infertile soil, Westland was naturally unattractive to the pioneers of New Zealand settlement, and it was not until the discovery of rich gold-bearing placers in 1864 and succeeding years that any real occupation of its land began. Even now it is sparsely settled, save in the lower river valleys, and is still in great measure covered by a luxuriant forest.

The fertile Southland Plains, at the extreme south of the South Island, with numerous farms and villages, resemble the Canterbury Plains in origin.

Between the Southland and Canterbury Plains

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are scattered among relatively low ridges a number of flats, filling old depressions in the schistose rocks. The material of which their surfaces are formed has been deposited by the rivers that flow through them. In the northern part of the South Island the Aorere Plain, the Takaka Plain, and the Waimea Plain, all in-extensive in area but with fertile land, are the results of river sedimentation in limited depressions, due partly to tectonic subsidence and partly to fluvial erosion.

In the North Island east of Mount Egmont is the Wanganui plain, which, gradually narrowing, extends northwards almost as far as Kawhia and southwards almost to Wellington. This plain is formed by a great thickness of marine Tertiary rocks with a very gradual inclination towards the sea from the mountains of pre-Tertiary strata and of younger volcanic rocks in the interior. Though the surface of the plain is still in great part intact, its level expanse is deeply dissected by numerous streams, some of which are bordered by broad flats, subject at times to inundations. Settlement began on the coast of this plain in the early 'forties of the last century, but received many set-backs owing to the Maori wars.¹ Even yet much of the plain, almost everywhere fertile, is thickly covered with forest.

¹ From 1843 to 1869.

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In the south-eastern part of the North Island, between Palliser Bay and Hawke's Bay, lies a narrow but relatively extensive area of rich flat-lying land, the material of which is thought to be formed by the deposits of a great and ancient river, the ancestor of the present Wairarapa.

The Waikato Plain to the south of the city of Auckland covers a large stretch of country traversed by the Waikato River in its middle course. Its surface is composed of a semi-volcanic soil, generally fairly fertile but in places poor and in parts swampy.

The Piako Plain, which extends southwards from the Firth of Thames east of Auckland, contains a considerable area of good land. Its surface, in general swampy, is but little raised above sea-level. Its population as yet is scant, but an extensive drainage scheme now being carried out will greatly increase the value of the land. The plain is the result of the deposition of fluvatile material (in origin mainly volcanic) in a long narrow arm of the sea, of which the Firth of Thames is the diminished remnant.

The elevated Kerikeri Plain,¹ which extends westward from the Bay of Islands in the

¹ *The Geology of the Whangaroa Subdivision*, Bulletin No. 8, New Zealand Geological Survey, by J. M. Bell and E. de C. Clarke.

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Auckland Peninsula, is composed of horizontal or almost horizontal lava flows, which overlie the much denuded, and here low-lying, remnants of the ancient peneplain before described. The plain has a poor soil and is now almost treeless. Formerly, however, a vast kauri forest grew upon it, and the digging of the fossil gum, derived from this source, forms the main industry of the sparse though heterogeneous population of this part of the country.

The centre of the North Island is marked by an extensive volcanic plateau. Geologically the plateau consists mainly of beds of rhyolitic tuffs and agglomerates more or less re-assorted by water, and lying generally in an almost horizontal attitude. The plateau is highest towards the interior, where it rises to over 3000 feet. For long distances its surface is almost level, being broken only by the deep narrow valleys of the numerous watercourses. Elsewhere it is more undulating. The greater portion is free from large timber, being covered by a thin growth of bracken and manuka, giving an effect like the sage brush of the Western States. The great incoherence of the loose pumiceous soil forms the chief cause of the barrenness of the region, which is consequently but little settled save around the various spas at the centres of hydrothermal activity. Of

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these, popular interest centres around the town of Rotorua, and the settlements of Whakarewarewa, Wairakei, Taupo, and Tokaanau, where geysers, hot springs, and various other similar phenomena form features well worthy of attention.

Outside the Taupo volcanic zone proper, hot springs occur at Te Aroha and at several other places in the North Island. In the South Island there are hot springs on the Hanmer Plains in Canterbury and in many of the western river valleys of the Southern Alps.

In the South Island of New Zealand the character of the rivers and streams has been in many localities influenced by extensive glaciation, whilst in the North Island tectonic movements and volcanic extrusions have had widespread effect.

In the various rivers descending from the Alps on the eastern side cascades and waterfalls are commonly seen in the mountains, but on the plains the water flows swiftly but generally at uniform grade, with only occasional rapids. Within the mountains the rivers usually flow in open U-shaped glacial valleys, with steep rock slopes on either side. On the Canterbury Plains they meander in numerous and ever-changing courses across spacious gravel flats. Floods are fairly common, since in places the level of the



BELOW PIPIRIKI, WANGANUI RIVER.

Photo. N. Tourist Dept.



THE WILBERFORCE VALLEY, NORTHERN PART OF SOUTHERN ALPS.

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river-bed is above that of part of the surrounding country.

The Westland rivers in many ways resemble those of the eastern side, but in general the valleys in the mountains are narrower, though still U-shaped. Gorges are more frequent, and the river-channels are more clogged by huge boulders. On the flats the dense forest growth prevents to some extent the spreading of the river-bed, so evident on the eastern side of the Alps.

In the South Island the largest river is the Molyneux or Clutha—a fine stream about 154 miles long, which rises in several large lakes amid wild Alpine country in the southern part of the island. In its headwaters the valley of the river shows graphic evidence of past glaciation, but lower down it flows mainly in sweeping bends with occasional gorges. As it nears its mouth the stream assumes the characteristics of the normal Canterbury Plains drainage. From the gravels of the Clutha, as well as from those of many of the Westland rivers, much alluvial gold has been extracted.

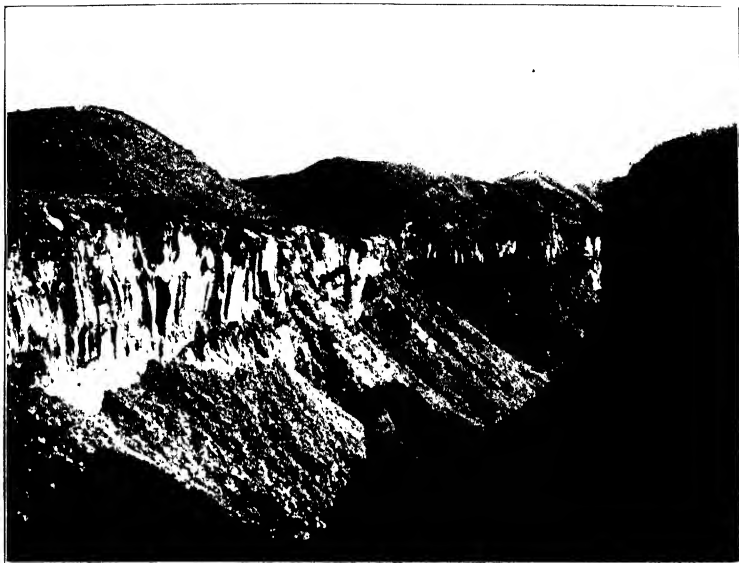
The Buller is the largest stream flowing to the west coast of the South Island. Its principal tributaries rise on the slopes of the Spencer and St. Arnaud Mountains. Though the river shows many fine stretches of calm deep water, the

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occasional rapids prevent its navigation by steamers. In fact, none of the rivers of the South Island are navigable for steamers save for comparatively short distances.

In the North Island the two largest rivers are the Wanganui and the Waikato. Small steamers ply up and down both streams for considerable distances from their mouths. The Wanganui rises on the western slopes of the volcanoes of Ngauruhoe and Ruapehu, and flows with gentle gradient down the slope of the Wanganui Coastal Plain. The river is justly famed for the remarkable beauty of its scenery.

The Waikato rises on the eastern slopes of Ngauruhoe and Ruapehu, and presents from its source to its mouth in Kawhia Inlet a great variety of scenic interest. Lake Taupo, an extensive body of water twenty-five miles long and sixteen miles wide, is situated not far from its headwaters. Numerous Maori settlements surround the lake shores, and many were the Maori battles which raged here in the fighting days of olden times. About seven miles below Lake Taupo the course of the river is broken by the beautiful Huka Falls and a short distance lower down by the Aratiatia Rapids. These falls and rapids mark localities where the river is cutting through the volcanic flows which aided to some extent in the formation of Lake



Photo, A. J. Forrest Port

EARTHQUAKE FISSURE NEAR WAIOTAPU.



Photo, R. P. G.

GRIFFITH'S GLACIER, NORTHERN PART OF SOUTHERN ALPS.



Photo, N. J. Leonard Dorr

THE LOWER ICE OF THE FOX GLACIER.



Photo, N. J. Leonard Dorr

THE MIDDLE COURSE OF THE FOX GLACIER.

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Taupo. In its lower reaches the Waikato is a fine broad river flowing smoothly in great bends and bordered by the flat lands of the Waikato Plain.

In New Zealand, glaciers, if we except those on Mount Ruapehu which are relatively insignificant, are confined to the South Island. They fill the heads of many Alpine valleys from Arthur's Pass southward, and in the heart of the Alps, in the neighbourhood of Mount Cook, form ice-rivers of imposing proportions. In this locality the Tasman, Murchison, Hooker, and Mueller are the principal glaciers descending on the eastern side of the Alps, while the Franz Josef, Fox, Balfour, Douglas, and M'Kerrow are the largest flowing towards the western seaboard.

Like most countries where extensive glaciation has occurred and where there have been recent faulting and volcanic activity, New Zealand contains many lakes.

In the North Island most of the inland lakes are directly or indirectly due to volcanic agencies. Thus the great lake of Taupo seems to have originated mainly by the bodily subsidence of a large area of volcanic rocks, owing to the removal by long-continued vulcanism of molten material subjacent to the earth's actual crust. Much of this material was expelled from the volcanic vents in the form of pumice and ash.

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Lakes Rotorua, Rotoiti, Rotoehu, and Tarawera seemingly are mainly the result of the same causes as those that formed and developed Lake Taupo. Lake Rotomahana is a sheet of dirty, muddy green water three and a half miles long by less than two miles wide, and with a maximum depth of four hundred and twenty-seven feet. The lake occupies an immense crater that developed at the time of the Tarawera eruption in 1886 on the site of a pre-existing pond. At the north-western corner the temperature of the water of the lake is so high that it is continually steaming.

In the South Island the lakes are due mainly to past glaciation, though tectonic movements seem originally to have influenced the form of some of the valleys in which the larger lakes lie. A number of the smaller lakes, such as the beautiful Ianthe and Mapourika in Westland, are merely irregular depressions in the morainic drift. Again, many of the small tarns high up in the Alpine valleys fill ice-gouged basins. Moraine dams across valleys which existed prior to the ice invasion but which were considerably enlarged by glaciation, have, however, generally accounted for the larger lakes. Of this nature is Lake Kanieri, surrounded by splendid forests and flanked by the lofty peaks of the Alps in the southern and eastern background. .



Photo. N. Z. Tourist Dept.

LAKI KANFRI, NORTH WESTLAND.



Photo. N. Z. Tourist Dept.

DUSKY SOUND.

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Lake Coleridge, Lake Pukaki, and others on the eastern side of the Alps fill the outward extremities of U-shaped valleys, in the heads of which glaciers are still active. Lake Wakatipu, farther to the south and lying almost in the centre of the mountainous country, occupies a basin which was apparently formed originally by tectonic movement and later modified by glaciation.

The splendid surrounding forests and the matchless background of gigantic rock, precipice, and snow-clad Alpine peak render the scenery of Lake Manapouri and Lake Te Anau to the south of Lake Wakatipu among the most impressive in New Zealand.

Lake Ellesmere in the South Island, Lake Wairarapa in the North Island, and others occupy old arms of the sea into which freshwater streams flow. As their mouths became bar-bound, the salt water was cut off and the water of the basins freshened. Correctly speaking, they are lagoons, and frequently, when their outlets become dammed during stormy weather, a channel for their waters must be excavated artificially in order to protect the surrounding country from inundation.

The strand of New Zealand has seen many oscillations in level through the long geological ages. These changes, which have continued into

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recent times and doubtless are still proceeding, have produced a shore-line of great variety.

In the Auckland Peninsula the depressed river mouths, the numerous skerries and islets off the coast, and many other features testify to the recent depression of the land. Thus have been produced the beautiful harbours of Whangaroa, the Bay of Islands, Whangarei, and Waitemata.

South of the Hauraki Peninsula, the eastern sea-board of the North Island, mainly cut in soft rocks, is bordered for miles by sea-cut cliffs, varied by long sand and gravel beaches with sand-dunes. Tauranga and the artificial ports of Napier and Gisborne are the only harbours. Elevated beaches on the coast near Waihi indicate a recent upward movement of the strand.

The western sea-board in many ways resembles the eastern. Cliffs cut in the soft strata of the Wanganui Coastal Plain are varied by sand or gravel beaches, from which sand-dunes sweep inland in places over the bordering low lands.

The southern part of the North Island seems to have been depressed in comparatively recent times, but the last movement was certainly upward. Graphic evidence of this uplift is seen in and around the harbour of Wellington. This



MURRE PEAK AND SINBAD GULLY, MILFORD SOUND.

PLATE 100

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harbour originated by the depression of a basin primarily formed by tectonic subsidence; but apparently much modified by fluvial erosion. At the time of the great earthquake in 1855 the shore-line around the harbour and apparently for many miles along the shore of Cook's Strait was elevated to heights varying from a foot or so to five feet. Thus New Zealanders owe part of the very limited flat land on which their capital city is built, as well as the fine natural road which follows the sea-beach from Lyell Bay to Worsley Bay, to this seismic event.

The north-eastern coast of the South Island exhibits a multiplicity of bays, channels, and islands, with a wild rocky shore-line; the north-western part shows sandy beaches broken by rocky cliffs of bolder topography. Harbours to the north-east are common, but towards the north-west the semi-artificial harbour of Nelson is the only one which can accommodate fairly large boats.

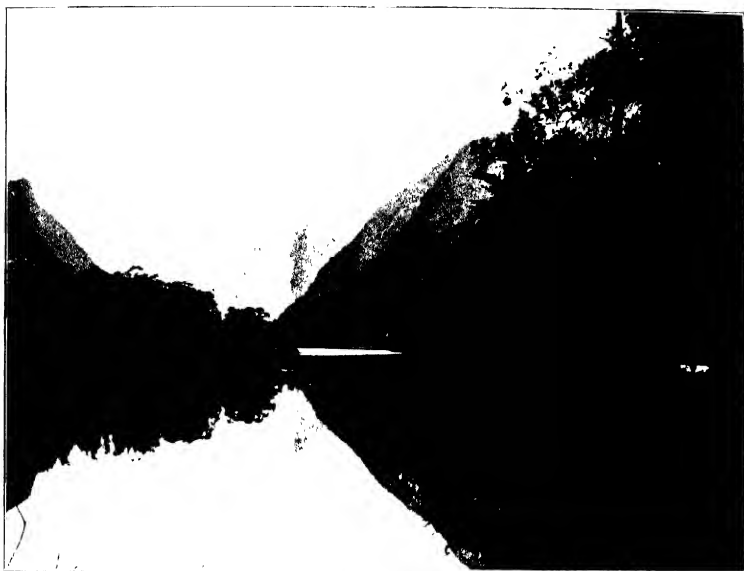
On both the eastern and western shores of the South Island are long stretches of gravel and sand beach, broken by low cliffs and inconspicuous headlands. On the west coast, north of the almost uninhabited fiord region, the only harbours are found behind the bars of the numerous large rivers. Craft not infrequently come to grief in trying to enter these dangerous

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and changing channels. The difficulties of working such ports account to some extent for the high price of coal in New Zealand. Much of the country's fuel is derived from mines on this storm-bound coast.

On the eastern coast the best harbours are formed by ancient craters or river valleys in hard volcanic rocks, which have been depressed beneath the sea. Lyttelton Harbour is a submerged crater, while Otago Harbour is the result of the depression of two adjoining stream valleys excavated in volcanic rocks. Raised beaches on both the east and west coasts indicate recent elevation.

The whole of the south-western part of the South Island gives evidence of a subsidence of the land. Here the numerous sounds or fiords formed by the depression of old glacial valleys are features of great scientific interest. The sounds are generally narrow, or relatively narrow, and are bordered for the most part by steep, much-smoothed rock slopes. The water is remarkably deep, though shallower depths commonly occur at the entrances. The best-known sound, Milford, is a feature of great beauty. Steep precipices rise thousands of feet from the water's edge or from behind the few gravel flats. A scant vegetation clings to the steep slopes, while the flats are covered by a



LAKE ADA, NEAR MILFORD SOUND.

Photo, N.Z. Tourist Dept.



MIDDLE FJORD, LAKE TE ANAU.

Photo, N.Z. Tourist Dept.

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forest of great luxuriance and variety. In places waterfalls leap many hundreds of feet from high hanging valleys rising in lofty glaciers, while everywhere in the background rise snow-clad peaks.

Though the climate of New Zealand is in general one of the most equable in the world, there is within the country's confines every variation from the almost tropical warmth of the northernmost parts to the almost arctic cold of the higher Alps, and from the excessive dryness of the Otago uplands to the amazing humidity of the fiord region.

The mean annual temperature, the minimum and maximum temperatures, and the precipitation at different points for the year 1912 are given below.¹

	Mean Temp. Fahr.	Lowest Temp. Fahr.	Highest Temp. Fahr.	Precipita- tion in Inches.
Auckland . . .	57.5°	34°	78°	43.06
New Plymouth . . .	58.1°	33°	80°	52.36
Gisborne . . .	56.6°	24°	88°	43.38
Wellington . . .	54.6°	29.2°	77.8°	48.30
Nelson . . .	54.9°	28°	82°	30.56
Hokitika . . .	51.7°	26.5°	74.5°	115.61
Christchurch . . .	50.8°	23°	90°	27.49
Dunedin . . .	49.6°	28°	83°	47.31

At Auckland frosts are rare, at Wellington they are somewhat more frequent, at Christ-

¹ *New Zealand Official Year Book*, Part I., 1913.

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church they are common and at times severe. Neither Dunedin nor Hokitika experiences ordinarily such great extremes in temperature as Christchurch. In Central Otago severe frosts sometimes last for weeks and even months. Here the climate in places is almost continental in character, and a much greater variation between the mean temperature of summer and winter is apparent than in any other parts of New Zealand.

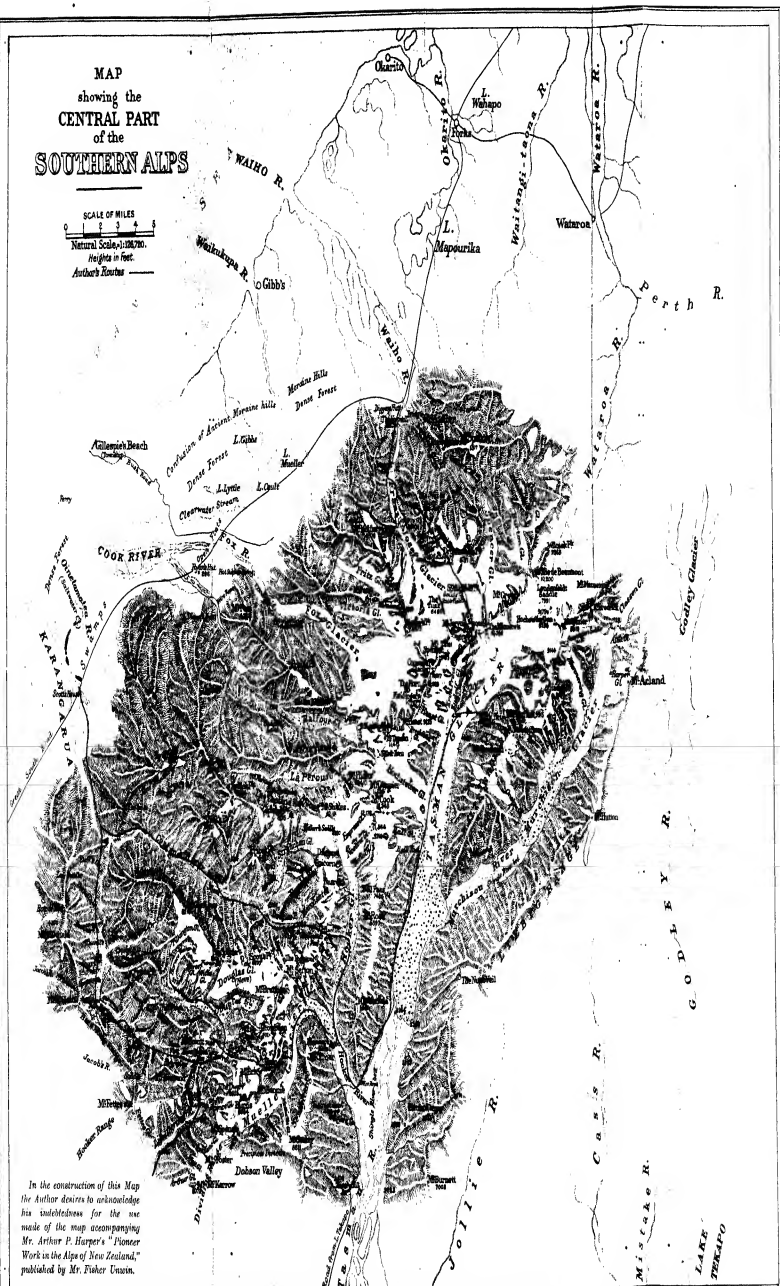
Nearly the whole of the country, with the exception of parts of Central Otago, enjoys an ample rainfall. In the mountain districts of the west and south precipitation is excessive. The locality of Milford Sound is probably one of the rainiest in the world. As in all island climates, rapid changes in the weather are common. The worst feature is the frequency and strength of the wind. To a stranger it seems to blow almost constantly, though in this respect the west coast of the South Island suffers less than other localities. The climate of the vicinity of Nelson is perhaps the best in New Zealand, and may be compared with the Riviera or Italy at their best.

To the salubrity of its climate and to the fertility of its soil New Zealand owes its fame as a pastoral, agricultural, and dairying country. To its equable climate also is in great part due

GEOGRAPHY AND CLIMATE

the health of its inhabitants, since they are able to pass a great portion of their leisure hours in the open air, and indulge in the various sports in which young and old New Zealand are almost equally interested.

SCALE OF MILES
Natural Scale, 1:126,720.
Heights in Feet.
Author's Routes



In the construction of this Map the Author desires to acknowledge his indebtedness for the use made of the map accompanying Mr. Arthur P. Harper's "Pioneer Work in the Alps of New Zealand," published by Mr. Fisher Unwin.

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